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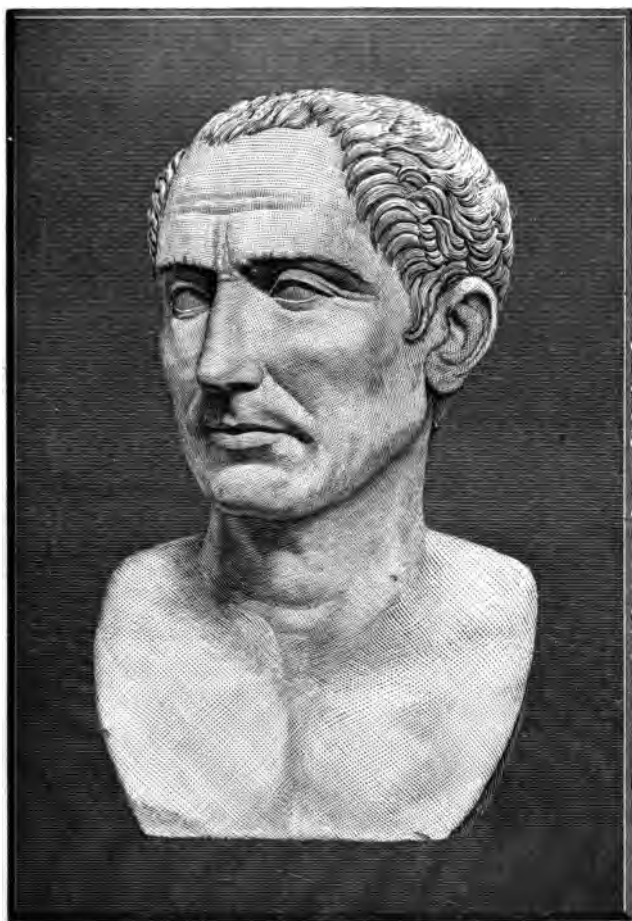
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CAESAR.

FROM A COLOSSAL BUST IN THE MUSEUM AT NAPLES

CÆSAR'S ARMY:

A STUDY OF THE

MILITARY ART OF THE ROMANS IN THE LAST
DAYS OF THE REPUBLIC.

BY

HARRY PRATT JUDSON.

THE UNIVERSITY OF CHICAGO PRESS



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PREFACE.

THIS little book is an attempt to reconstruct Cæsar's Army so as to give a clear idea of its composition and evolutions. It is hoped that students of Cæsar's writings and students of military science alike may find interest in such a study.

The Commentaries of Cæsar are the story of his wars. They are military history. It is true that they were intended largely for civilian readers at Rome. Still, they imply throughout a certain amount of military knowledge that all Roman citizens were supposed to have. The modern student can hardly be said to read understandingly, unless the text conveys to his mind the same idea that it conveyed to the intelligent Roman reader to whom Cæsar addressed it. Hence it seems clear that we should at least seek to gain those notions of the military art with which the Roman reader was familiar, and in the light of which Cæsar described his campaigns.

Many of these facts are entirely lost. Many others we can reach at best only approximately. Our inferences, based sometimes on meagre data, may often be erroneous. And yet is it not better to have even such an inadequate idea than no idea at all?

It is needless to say that in these pages the work of modern scholars has been laid heavily under contribution. Especially the exhaustive and ingenious treatise of Rüstow has been followed in many particulars. It has been the aim of the author to reach the truth, and to present it as clearly as he could, giving credit

where the investigations of others have been of use, and never hesitating to set forth different conclusions where the circumstances seem to warrant.

War is barbarism. But the story of man has no epoch in which war has not existed. The history of war is the history of the development of the human mind. The military science of each age is almost the exact reflex of the civilization of that age. And no study of the achievements of man can be complete unless we understand the method of the hostile collision of nations.

The history of military science is yet to be written. Thus far, only some fragments exist. This work is intended as an essay at grouping and illustrating some such fragments.

THE UNIVERSITY OF MINNESOTA,
MINNEAPOLIS, February, 1888.

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the men being used to fill up the depleted ranks of the other legions. Thus Cæsar had in that year eight and a half legions under arms. Of these, fifteen cohorts (all of Legion XV and five cohorts of Legion XIV) were destroyed with Sabinus.

At the opening of the campaign of 53 B.C., Pompey loaned Cæsar two legions (I and III). One new one was raised, which received the same number (XIV) as the one Cæsar had divided, and of which five cohorts were lost with Sabinus. These ten legions were used in the operations of the year 52. B.G. VI, I, 32^a. G. 205, note 3.

In the commentary written by Hirtius Pansa (de Bello Gallico, Bk. VIII) the legions are repeatedly mentioned by number; although, unfortunately, with considerable confusion where the Mss. agree, and moreover with considerable variation in the Mss. If we should follow the text of Pansa, we should find the 12th legion in three different places at the same time: then, too, he mentions a 6th legion, which we nowhere else find in Cæsar's army. However, by using some care we can trace the different legions from place to place pretty accurately. It is clear enough that in his last campaign in Gaul, Cæsar had eleven legions, although Pansa makes no mention of the levy of the additional legion. Very possibly it was numbered XV, as Göler conjectures, to take the place of that Legio XV that had been destroyed with Sabinus in 54 B.C. B.G. VIII, 2, 4, 6, 8, 11, 24, 54. B.G. VIII, 2, 24, 54. B.G. VIII, 2, 24. B.G. VIII, 4 G. pp. 333, 334, 336, 338, 340, 343, 353, 354, 363, 369, 373, 374.

For a careful study of the history of Cæsar's legions, see the dissertation of J. G. Krohl, *De Legionibus Reipublicæ Romanæ*.

§ 4. The officers in command of a legion were originally the military tribunes (*tribuni militum*), six in number. These were appointed partly by the *Comitia* at Rome, partly by the consul, or, frequently, by the proconsul himself; but always from the knights or nobles. The old requirement of military experience had become obsolete in Cæsar's time, so that the tribunes were mostly selected mainly from political considerations. It can readily be seen that this did not add to their efficiency. The six assigned to each legion were divided into three pairs, and each pair took the command for two months. During this period the two alternated on duty day by day. This custom seems an odd survival of the peculiar Roman jealousy of a single command, as in the case of the consuls. Their duties were, a general superintendence of the legion, the nomination and assignment to duty of the B.G. I, 39

ABBREVIATIONS.



- A. = *Caesar de Bello Africano*.
- App. = Appian.
- B. G. = *Caesar de Bello Gallico*.
- C. = *Caesar de Bello Civili*.
- Dio. = Dion Cassius.
- G. = Göler, *Caesars Gallischer Krieg*, Tübingen, 1880.
- Gen. = Albericus Gentilis, *De Armis Romanis*.
- Gro. = Grotefend, *Zur Römischen Legions geschichte*.
- H. = *Caesar de Bello Hispanico*.
- Jal = Jal, *La Flotte de César*.
- Jung = Jung, *Leben und Sitten der Römer in der Kaiserzeit*.
- K. = Krohl, *De Legionibus Reipublicae Romanae*.
- Lange = Lange, *Mutationum Historia*.
- L. = Lindenschmidt, *Die Alterthümer unser heidnischer Vorzeit*.
- M. = Marquardt-Mommsen, *Handbuch der Röm. Alterthümer*, Bd. 5, 1884.
- N. = Nissen, *Das Templum*.
- N. = *Histoire de Jules César, par Napoléon III*.
- Notes = Notes to Allen and Greenough's *New Caesar*.
- P. = Polybius.
- Plut. Cæs. = Plutarch's *Cæsar*.
- Plut. Pomp. = Plutarch's *Pompey*.
- R. = Rüstow, *Heerwesen und Kriegführung Cäsars*.
- R. K. = Rüstow und Köchly, *Geschichte des Griechischen Kriegwesens*.
- Ro. = Robertson, *History of Charles V*.
- Sch. A. = Schambach, *Die Artillerie bei Cäsar*.
- Sch. R. = Schambach, *Die Reiterei bei Cäsar*.
- Schef. = Scheffer, *De Militia Navali Veterum*, 1654.
- Suet. = Suetonius.
- T. G. = Tacitus, *De Germania*.
- U. = Upton's *United States Army Infantry Tactics*, 1883.
- V. = Vegetius.

CÆSAR'S ARMY.



I. THE ORGANIZATION.

1. THE INFANTRY OF THE LEGION.

§ 1. The chief strength of the Roman army was the legionary infantry. The cavalry was merely auxiliary to this in field operations and was comparatively weak in number. The engines (corresponding to our artillery) were used in siege operations, but very little in the field. The heavy infantry furnished by the allies (*auxilia*), though generally organized and trained after the Roman model, were rather used to make a show of force than for much important service in battle.

B.G. III, 25

The European armies of the middle ages were composed almost wholly of cavalry; the individual horseman being encased in heavy armor and equipped with sword, spear and battle-axe. In modern armies the infantry is again the main arm of the service. Unlike the Roman legions, however, our infantry is greatly strengthened by a powerful field artillery. No army of mere cavalry can be very effective unless in partial and temporary operations.

Ro. I, § II,
p. 80, 81.

§ 2. The tactical unit of the Roman infantry was the legion (*legio*). Cæsar had under his command at different times a varying number of legions.

A *tactical unit* may be defined as a body of troops under a single command, by a combination of several of which a higher unit is formed. Thus in the army of the United States, the tactical unit of the army U. §§ 365, 366, is the *corps*; each corps should contain three *divisions*; each division, 551, 718, 748, three *brigades*; each brigade, four *regiments* (or *battalions*); each

So we may fairly assume that that number was in round numbers the strength of a legion when its ranks were full.

Gellius,
16, 4, 6.

§ 6. The legion was divided into ten cohorts (*cohortes*); each cohort into three maniples (*manipuli*); each maniple into two centuries (*centuriae, ordines*).

The *tactical unit* of the legion was the cohort; of the cohort, the maniple.

C. I, 64;
III, 91.

The half of the maniple Cæsar usually calls *ordo*. The term *centuria* occurs only twice in the Commentaries; and it is at least doubtful in each case whether reference is made to the divisions of the maniple at all. We should notice that the word *ordo* is also used in other senses than the above. It often means a rank, or line, of soldiers; often a relation of rank among officers, as *primorum ordinum centuriones*, sometimes it refers to the officers themselves; and frequently it denotes a mere position in the array.

The maniple, as the tactical unit of the cohort, consisted from day to day of the same men, so far as these were present. Each time the maniple was formed, it was divided, presumably according to the height of the soldiers, into two equal parts. These were the *ordines*. Thus it will be seen that these did *not* necessarily consist from day to day of the same men; as, of course, if any should be absent, the division would not be made at the same point in the line on successive days. The *ordo* corresponded exactly to the *platoon* of an American company. The maniple corresponded to our *company*.

§ 7. With Göler's estimate of 4800 men to the legion, each cohort would contain 480 men; and each maniple, 160 men. Rüstow's computations are based on an average strength in the field of 3600 in the legion. That would give 360 to the cohort, and 120 to the maniple.

Varro;

-18;

Diac.

§ 8. Each maniple was under the command of two centurions (*centuriones*), one (the senior in rank) in charge of the first *ordo*; the other (the junior), in charge of the second *ordo*. Each centurion probably had a subcenturion (*optio*) to assist him. The *optio* was chosen from the ranks by the centurion. The centurion, like the line officers of our

infantry, was on foot. As a badge of his office, he carried a short staff (*vitis*), or baton; this was in token of his power of inflicting punishment.

§ 9. Of the six centurions in a cohort, the senior centurion of the first maniple was called *pilus prior*; the junior, *pilus posterior*.^{M. V., 368-374} The senior of the second maniple was *princeps prior*, and the junior was *princeps posterior*. The senior of the third maniple was *hastatus prior*, and the junior, *hastatus posterior*.

Thus the terms *pilus*, *princeps*, *hastatus* referred to the first, second, and third maniple respectively. This is plainly a survival of the old organization, in which the soldiers of the first line were called *pilani* (*pili*), those of the second *principes*, and those of the third *hastati* (or *triarii*). Such distinction was entirely lost as applied to the soldiers, in the new organization of the legion by cohorts. The only traces of it we find in the three maniples whose union formed a cohort, and in the titles of the centurions of those maniples.

We readily learn the *ordo* the centurion commanded by the epithet *prior* for the first and *posterior* for the second.

The cohort to which a centurion belonged was indicated by its number in the legion; e.g., the lowest centurion in a legion was *decimus hastatus posterior*; *tertius hastatus prior* would refer to the centurion in command of the first *ordo* of the third maniple of the third cohort; and the senior centurion of the whole legion was *primus pilus prior*, or simply *primipilus*.

§ 10. The senior centurion of a maniple must have commanded the maniple. Each cohort was under the command of its *pilus prior*; and the *primipilus*, at least in time of battle, practically directed the legion.^{M. V., 371-72}

Such an arrangement would hardly be feasible in a modern army. Only the solidity and uniformity of the Roman array made it possible for them.

R. p. 11.

§ 11. The position and duties of a centurion corresponded very nearly with those of non-commissioned officers in a modern army. They were chosen from the ranks, as are our sergeants and corporals, and were very rarely promoted to the grade of tribune. However, their responsibilities (not their rank) were in some respects (§ 10) like those of our commissioned officers. The centurions were usually nominated by the tribunes. They received their appointment, however, from the commanding general.

§ 12. The relative rank of the centurions in a cohort is not difficult to learn, and there is little doubt that it was as explained in the sections just preceding. The order of their rank throughout the legion, however, — or, in other words, the rank of the centurions of any one cohort relatively to those of any other, — is quite a different matter. We have no clear and positive information on the subject, and the various theories formed are based on isolated references, and on inferences from the general spirit of the Roman organization and from the probable course that human nature, as we know it, would take under conditions like those in which the Romans were.

The main facts with which any theory must accord, are the following :—

1. The centurions were plainly divided into *classes* according to rank. There is constant reference to those of the first class (*primorum ordinum*). Cæsar in one place speaks of a centurion who for especial gallantry was promoted from the eighth class (*ab octavis ordinibus*) to the position of *primipilus*, senior centurion of the first cohort (§ 9).

B.G. I, 41².
C. III, 53.

2. We may infer from this last reference (*ab octavis ordinibus*) that there were *at least eight* classes. Of course there may have been more.

3. From an expression of Tacitus (Hist. III, 22 : *occisi sex primorum ordinum centuriones*) we infer that at that

time there were *at least six* centurions of the first class. As the time to which he refers was that of the emperor Galba, not much more than a century after Julius Cæsar, it seems likely that no material change had been made meanwhile.

4. A passage in Vegetius (II, 21) gives us some idea of the order of promotion. We quote :—

Nam quasi in orbem quemdam per diversas scholas milites promoventur, ita ut ex prima cohorte ad gradum quempiam promotus vadat ad decimam cohortem; et rursus ab ea, crescentibus stipendiis, cum majore gradu per alias recurrit ad primam.

5. The centurions of the first class (*primorum ordinum*) B.G. V, 28¹, held so high rank that they were regularly invited to the VI, 7⁶. council of war, in company with the *tribuni militum* and *legati*.

On these and a few minor facts, ingenious military antiquarians have constructed very elaborate and very diverse theories. The most prominent of these theories, with a few considerations both for and against them, are as follows :—

Rüstow conjectures that the centurions of each cohort form one R. pp. 8-11 class. There would then be ten classes in the legion, with six in each class. The regular order of promotion would be, through all the six grades of the tenth cohort, then from the sixth through to the first place in the ninth cohort; and in like manner until every grade had been passed to that of *primipilus*. According to this view, the *centuriones primorum ordinum* were those of the first cohort, six in number.

It will be seen that this scheme accords with 2 and 3 above. The passage in Vegetius (4 above), Rüstow gives this interpretation: As vacancies occurred in the ranks of any cohort, they were filled by detaching men from the next lower cohort. Thus recruits would always fall to the tenth cohort, and the first would contain the very flower of the legion. Hence, under ordinary circumstances, when it became necessary to appoint a centurion, selection would be made from the *privates* of the first cohort (presumably from its first maniples), and he would be assigned as a centurion (*hastatus posterior*) of the tenth cohort (*decimus*). Then he would pass successively through the grades of that cohort, then through the grades of the ninth, and so on, until he

became first centurion of the first cohort. Thus the circle (*orbem*) of service would be complete.*

Göler devises a different scheme. In the first place, to the 60 centurions of the legion he adds 60 subcenturions (*optiones*), making a total of 120. The subcenturions he calls simply centurions, just as in our army a lieutenant-colonel is commonly called merely "colonel," or a brigadier-general is usually addressed as "general." Then he makes 12 classes of rank, each class comprising 10 centuriones; *i.e.*, one from each cohort. The first class (*centuriones primorum ordinum*) would include the 10 *pili priores*, or, in other words, the commanders of the 10 cohorts. The second class would be the 10 *pili posteriores*; and so on through the 6 classes of real centurions, the sixth being the 10 *hastati posteriores*. The seventh class he considers to have been the 10 subcenturions of the *pili priores*; and in like order to the twelfth class, the 10 subcenturions of the *hastati posteriores*.

It will at once appear that this theory also accords with the essential points, 3 and 4, above. Göler would explain Vegetius in this way:—

When a private soldier was promoted, he became subcenturion to the *decimus hastatus posterior*. As he rose in rank, he passed from cohort to cohort, but always as subcenturion to the *hastatus posterior*, until he reached that position in the first cohort. His next step in promotion would lead him from the *twelfth* to the *eleventh* class, and he would return to the tenth cohort as subcenturion of the *decimus hastatus prior*. Thus again and again he would complete the circle (*orbem*), going through the cohorts 6 times in the 6 classes of subcenturions, and 6 times in the 6 classes of centurions, until at last he would reach the rank of *primipilus*. Here his promotion usually ended.

Rüstow argues that the *cohorts*, as well as the centurions, were carefully distinguished in rank; that it is well known that the earlier Roman custom of beginning the battle with less experienced troops, and reserving the veterans for an emergency, had by the time of Cæsar been quite reversed; so that the first line of the legion (the first four cohorts) must have included the choice soldiers; and hence that the centurions would in all probability have been graded in like manner.

Marquardt objects to the scheme of Rüstow, that thereby promotion would make the commander of a cohort merely a subordinate in the next higher cohort, an arrangement quite impossible to the military mind. Moreover, as Göler says, the most experienced and skilled off-

* This is an amplification of the interpretation of Vegetius by Rüstow; but merely carries out the suggestions of the latter.

cers would be grouped in the first cohort, and the least experienced and skilled would be gathered in the tenth — an arrangement obviously impractical.

Rüstow remarks, however, and the remark is not without weight, that there was not, after all, a very great difference between the different cohorts of a legion in point of soldiership; nor again a very wide distinction in the same regard between the centurions and the privates. The Roman organization was marked by a peculiar solidarity, very much unlike our own; and while, of course, the officers had great influence on the fortunes of the battle, yet that influence must have been very considerably less than in a modern army. B.G. II, 20³

But the strongest point in favor of some such plan as that of Göler is the fact that the *primi ordines* are sometimes mentioned in such a way as to imply that they held immediate relations with all the cohorts in the legion. Thus, after the council of war that preceded the operations against Ariovistus, the legions that had been panic-stricken arranged with the tribunes and centurions of the first class to make their apologies to Caesar. This would imply that the *primi ordines*, like the tribunes, were immediately accessible by all the soldiers. It would be difficult to imagine the troops of the other nine cohorts coming for such a service to the officers of the first. Certainly it would seem more natural for the men of each cohort to go to their own commander. Passages of similar import are quoted by Marquardt from Livy, Hyginus, Tacitus (II, 89), Frontinus, and others. The scheme of Marquardt, it may be noted, is the same as Göler's, without the subcenturions. This would make but six classes, and cannot be reconciled with point 2 above. B.G. I, 41². M. p. 371.

The principal objection to the system proposed by Göler is the fact that subcenturions seem not to have been in the grades of promotion, but were more probably chosen from the ranks, each by his own centurion (§ 8). If we take away these, we are at once reduced to the six classes of Marquardt, and meet the same difficulty.

One striking difference between the Roman organization and that of modern armies is in the matter of the number of officers. The Romans had far fewer than we. In neither cohort nor maniple do we find any trace of officers corresponding to the commissioned officers in one of our companies, or even to our relatively numerous corporals. The centurions seemed to have all the functions that we should

assign to sergeants. They must, besides that, have exercised at least a portion of the duties of general supervision and command that belong to a captain and lieutenants of our infantry. Each *prior centurion* must have had some such general authority over his maniple; and each *pilus prior*, besides the direction of his maniple, must have had some charge of the cohort. For the command of the legion, as we have seen, the Roman methods provided.

The objection of Marquardt to Rüstow's scheme of rank applies with equal force both to Marquardt's own plan and to Göler's, as well as to Rüstow's. According to the scheme of either of the two former, a centurion who had commanded maniples, *e.g.*, *primus hastatus prior*, on promotion would become second in command of a maniple, *e.g.*, *decimus princeps posterior*. This would be quite as little according to modern military ideas as to promote the commander of a cohort to a subordinate place in another cohort. Then to make the two theories named quite consistent, we should make the first three classes contain the *priores*, in the order of *pili*, *principes*, and *hastati*; and the second three classes should comprise the *posteriores*, in the same order.

This, however, would provide for but *six* classes, and we see that there must have been not less than *eight* (2, above). If we adopt the view of Göler, and add six classes of subcenturions to the six of centurions, we at once run counter to a strong probability that subcenturions (*optiones*) were not in the regular line of promotion, but were chosen each by his own centurion. At least, this seems to have been the fact both before and after the time of Cæsar; and hence very likely was not different at that time. A fair verdict on each of the ingenious theories thus far propounded would perhaps be, "not proven."

2. THE STANDARDS.

§ 13. Each legion had as its standard an eagle (*aquila*, c. III, 64, ¹ Fig. 1), usually of bronze or silver, on a wooden staff. This



Fig. 1.

was entrusted to the care of the first cohort, and usually to its senior centurion (*primipilus*). Hence this officer was sometimes called *aquilifer*; though the same term was applied to the men he selected to carry the standard (Fig. 4).

Each cohort, also, had a stand- B.G. II, 25
ard of its own (*signum*, Fig. 2). The bearer of this was called *signifer*. Sometimes the legion for brevity was called *aquila*, and H. 30.

in like manner the cohort was denoted by *signum*. H. 18.
The *signum* was usually an animal—a sheep, for instance—on a staff. Of course it would differ for different cohorts, so that the men in the confusion of battle might know their proper place. B.G. IV, 26¹



Fig. 2.

The cavalry and light troops (§§ 17, 18) carried a *vexillum* (Fig. 3). This was a little banner, white or red, attached to a short horizontal piece of wood or metal surmounting the staff.



Fig. 3.

There was another banner called *vexillum*, the standard of the general. B.G. II, 20¹
This was white, with an inscription in red letters giving the name C. III, 89.
of the general, his army, etc. It was placed near the general's tent in the camp, and when displayed was the sign for Dio Cassius Lib. 40.
march or battle.

Fig. 4. *Aquilifer.*

In the period when the maniple was the tactical unit of the legion, each maniple had its *signum*. Göler thinks this to have been the case even in Cæsar's army. But a consideration of the account of the battle II, 25². with the Nervii would lead to a different conclusion. Cæsar relates that of the fourth cohort all the centurions had fallen, the standard bearer had been slain and the standard lost. This certainly seems to imply that the cohort had only one standard and one standard-bearer.

VI, 439. Again, in speaking of the flight of the servants on one occasion when a foraging party was suddenly attacked, Cæsar says *se in signa manipulosque coniciunt*. We interpret, *the servants threw themselves among*

the cohorts and maniples. That is, they rushed for safety into the intervals between the cohorts (*in signa*), and also even into the smaller intervals between the maniples (*in manipulos*). Here *signa* seems to refer to the cohorts.

3. THE MUSIC.

§ 14. The musical instruments used in the Roman army were the bugle (*buccina*, Fig. 5), the trumpet (*tuba*, Fig. 6), the cavalry trumpet (*lituus*, Fig. 7), and the horn (*cornu*). This last was made of the horn of a buffalo, and provided with a silver mouthpiece. The others were probably of brass.

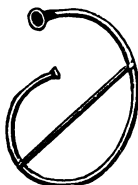


Fig. 5.



Fig. 6.



Fig. 7.

Cæsar mentions as musicians only *buccinatores* and *tubici-* B.G. II, 20¹
cines. The former seem to have used the *cornu* as well as VII, 47².
the *buccina*. C. II, 35.

The Romans knew very well a fact familiar to modern tactics, that, to carry a command amid the tumult of battle or down a long line of march, the penetrating notes of a brazen horn are much more effective than the sound of the human voice. And accordingly the signals for the various evolutions of march and battle were given by horn and trumpet, first by the horn, at command of the general, then taken up by the trumpets. The bugle seems to have sounded the divisions of the day—reveille, noon, and night-fall.

We know that there were more trumpets than horns. Quite likely each manipule had its trumpeter, and each cohort its *buccinator*.

4. THE BAGGAGE TRAIN.

§ 15. The heavy baggage of the legion (*impedimenta*) was carried by pack-animals (*jumenta, jumenta sarcinaria*), either horses or mules. Wagons or carts, while occasionally used by the army, were generally found only with the sutlers (*mercatores*) who followed the legions. The personal baggage (*sarcinae*) was carried by the soldiers (§§ 45-48).

p. 16-19. § 16. Rüstow has made elaborate calculations of the quantity of baggage a legion must have had. We follow his estimates in the main, making such adaptations as may be warranted by deviation from his figures for the size of the legion.

We may reckon the load of one pack-animal at 200 lbs. The first thing would be the tents (*tentoria, tabernacula*). These as described by Hyginus were on a square base, 10 feet on a side, with a wedge roof. Ten men could use such a tent. Hyginus estimates 8 men in a tent. Yet he allows one to every 10 men, as one-fifth of each *contubernium* should always be on guard duty; and hence of the 10 belonging to any one tent, only 8 would ever occupy it at the same time. It seems safe to consider that the *contubernium*, a group of soldiers messing together in a tent, was 10 in number also in Cæsar's army. Then, each centurion had one tent. So a manipule would need 14 tents for the centurions and a strength of 120 men. Allowing two for the servants, the entire number would be 16. That would make 48 for a cohort, and 480 for a legion. To this number must be added those needed by the six tribunes and their servants, or perhaps 12 more. If tents are allowed also for subcenturions, perhaps we should estimate 60 or 30 more,

according as two subcenturions or one ~~subcenturion~~ part
one tent.

The tents were of leather (*pelles*). The weight of one, including two upright poles, one ridge-pole, and a supply ^{291.} of pegs, must have been at least 40 lbs. One horse, then, ^{R. 47.} could carry five such tents. It seems more likely, however, that we should estimate one pack-animal to each tent; *i.e.*, one to each centurion and one to each *contubernium*. In this way would be carried provisions for a week, with hand-mills (§ 47), blankets, etc.

For pitching camp there must have been needed a full supply of stakes, tools, etc. As these were for general use, they could not have been divided among the pack-animals of the cohorts. So we may add one animal to each cohort for this service. Thus the cohorts would have at least 49 beasts. To each beast should be allowed one servant (*calo*), ^{B.G. II, 24³;} who could attend to a centurion or *contubernium*, and on ^{VI, 36³.} the march would lead the animal conveying the baggage under his charge.

The higher officers had, besides at least two riding-horses ^{B.G. VII,} each, a still greater number of pack-animals. We shall not ^{65³.} be far astray if we assign to each tribune three pack-animals and five servants. Thus the number of the pack-horses or mules in the baggage train of a legion reaches at least 520.

If we consider the normal strength of one of Cæsar's ^{G. p. 213.} legions to have 4800 men, the maniples would have had 160. This excess of 40 men over the estimate above would have required four tents and other appurtenances, and four pack-animals to carry them. That would add 120 animals and the same number of servants to the baggage train, giving a total of 640 beasts of burden. However, even if this is the nearly correct number for a normal legion, we must remember that a legion very rarely had its normal force. Rüstow's estimate of 520 animals cannot be far out of the way as the baggage train of one of Cæsar's legions in the field.

We know ~~nothing~~ **AUXILIARY INFANTRY.**

Q. 17. The auxiliaries (*auxiliares*) were raised from subject or allied states by enlistment, by conscription, and by treaty. Of course in no case were they Roman citizens.

Among the auxiliaries obtained by voluntary enlistment were the light-armed troops (*milites levis armaturae*, Fig. 8),



Fig. 8.

a. Slinger. — *b.* Light-armed soldier. — *c.* Legionary on the march. —
d. Legionary ready for battle. — *e.* Light-armed soldier.

B.G. II, 7,
10¹.

used for skirmishing or rapid movements for which the heavily loaded legionaries were hardly adapted (§ 46). Then there were the slingers (*funditores*, Fig. 8), casters of stones and leaden balls, those from the Balearic Islands being especially skilful; and the archers (*sagittarii*), often from Crete or Numidia.

Of the organization of the auxiliaries conscripted or supplied by the allies, little is known definitely. We may infer that it would depend much upon the nation; but in case of long service the Roman general doubtless gave some atten-

tion to their improvement. They were for the most part used to make a show of strength, thus impressing the enemy with fear, or to aid in constructing fortifications, or similar work. Cæsar never placed much dependence on them for actual battle. As they were usually posted on the wings of the army, they were often called *alarii*. B.G. I, 51.
III, 25.

The light-armed auxiliaries (Fig. 8) wore a short jerkin, or jacket, of leather, without the corselet; and they carried a light, round shield (*parma*) instead of the heavy *scutum*. The archers had neither corselet, helmet, nor shield, as their bow and quiver would prevent their carrying them. Their arms were protected by very thick sleeves.

6. THE CAVALRY.

§ 18. Originally in the Roman army a body of cavalry, about 300 strong, of Roman citizens, was attached to each



Fig. 9.

legion. This custom had been discontinued by Cæsar's time, although afterwards it was revived under the empire. Cæsar's cavalry consisted entirely of auxiliary troops, raised in like manner and from the same sources as the auxiliary infantry; and these were massed in a single body. During the Gallic war the cavalry attached to the Roman army B.G. I, 15;
V, 5.

averaged about 4000 in number. When the legions were in winter quarters, the cavalry contingents were scattered to their homes. There were, however, a few enlisted men in this arm of the service who remained constantly under the standards. They were Gauls, Germans, and Spaniards. (Fig. 9.)

B.G. V, 46²;
VII, 13¹; V,
26²; VII,
55¹.

The organization of the auxiliary cavalry contingents was after the manner of their nation; modified more or less, doubtless, by Roman customs. Contingents of from 200 to 400 men were commanded by *præfecti equitum*. A larger body was always under a Roman commander.

B.G. IV,
11⁴,
B.G. I, 52⁴.

Of course the enlisted cavalry was organized entirely in the Roman way. A tactical unit was the *ala*, or regiment, 300 to 400 strong, commanded by a *præfectus equitum*. The *ala* was divided into *turmae*, squadrons, of perhaps 33 men each, including the commander, the *decurio*. The *turma* was divided into three *decuriae* of 11 men each.

A. 29, 78.
B.G. VI, 84.
A. 29.
G. p. 229.

7. THE ARTILLERY.

§ 19. For battles in the open field the Romans of Cæsar's day seldom used anything corresponding to modern artillery. In defending and attacking fortified places, however, engines of various kinds were employed for hurling missiles, and, in case of attacking, for battering down walls. As such engines could not easily be improvised, and must always be at hand in a campaign involving siege operations, it seems quite likely that a siege train would usually be carried with the army. That would involve a body of men who should see to its transportation and who should understand setting it up, using, and repairing it. Possibly a detachment of the *fabri* (§ 36) was entrusted with this work.

R. pp. 16-19.

§ 20. Of the exact construction of the Roman artillery of this period we have no precise accounts. We can only

infer what it was from the names applied, from its use, and from what we know of Greek military engines and of those in general use at a later time.

§ 21. The missile weapon Cæsar almost universally calls *tormentum*. This word (from *torquere*, to twist) plainly refers to the source of power, viz., the elasticity of *torsion*.

§ 22. There seems no reasonable doubt that the Greek and Roman artillery of the same age had about the same construction; and, further, that there had been no material change in that construction at Cæsar's time for some two or more centuries. Then we shall be quite near the truth if we examine the Greek artillery of a somewhat earlier day than Cæsar's.

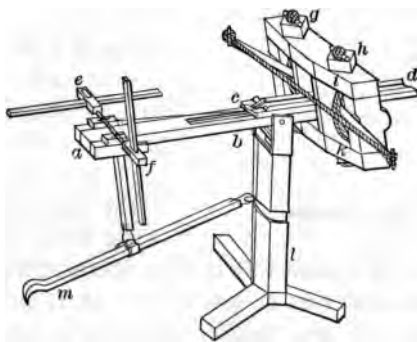


Fig. 10. Catapult.

§ 23. The heavy missile weapons were of two kinds: those for hurling their missile in a direction horizontal, or nearly so, and those that threw a heavy mass at a considerable angle. The former shot large arrows, and were called catapults (*catapultæ*). The latter kind usually cast heavy stones, but were sometimes provided with blocks of wood. They were called *ballistæ*.

R.K. pp. 378
seqq.

§ 24. Catapult and ballista alike had three essential parts : the standard, a track for the missile, and the arrangement that provided motive force.

The standard (*l*, Figs. 10, 11) was made strong and heavy, so that the machine might rest firmly on the ground and be unshaken by use.

The track for the missile (*ab*, Figs. 10, 11) was a stout framework in which fitted a slide (*cd*) which slipped smoothly up or down the track. The missile was placed in a groove on the upper side of the slide. By a system of levers the track of the catapult could be aimed to direct the missile at a greater or less vertical angle. By a similar arrangement a variation in the horizontal aim could be made.

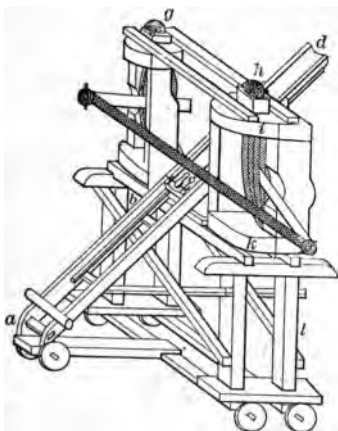


Fig. 11. *Ballista.*

The apparatus for providing force consisted in the first place of a framework of three compartments, formed by two horizontal bars or sets of bars (*k*, *i*) and four up-rights. Through the middle compartment extended the missile track (*cd*). The other two compartments were fitted alike. A block (*h*, *g*) bored with a vertical hole was placed over a similar hole in the upper part (*i*) of the framework. Strands of hair were passed from below, through the holes in the frame and block, over an iron cross-pin, and back down through the holes again. The other end of these strands was passed in like manner around a corresponding cross-pin on the under side of the framework. The strands were then stretched to their utmost tension

(the cross-pins meanwhile being twisted in opposite directions) and the blocks on upper and under side screwed fast. There was thus formed a strongly twisted rope or cluster of ropes. A rigid bar of wood or metal was then inserted through each cluster. These bars rested in beds cut in the two outer uprights. The inner end of each bar rested against the front of the corresponding inner upright. The outer ends of the bars were then connected to each other by a strong cord (a bowstring).

It will at once be seen that when the bowstring is drawn back, the bars are drawn from the beds; and that when the bowstring is let go, the torsion of the ropes at once throws the bars violently back against the beds again, thus tautening the bowstring and propelling the missile along the track.

In using the *tormentum* the slide was pushed forward until its hinder end was at the bowstring. This was then slipped under a trigger-like arrangement near the end of the slide, where it was held fast. Through a ring in the rear of the slide was tied a rope, which then passed around a windlass. By means of this windlass the slide was drawn back, pulling the bowstring with it. The missile was then laid in the groove of the slide, and, the trigger being raised, the bowstring was released, and drove the missile towards its destination.

§ 25. The weight of a heavy catapult has been estimated, R.K. pp. 384
according to size, at from 84 lbs. to 600 lbs. seqq.

At least two men would be required to manage the smallest. Of course each increase in the size of the weapon would demand more men.

From a statement of Philo, we can estimate the cost of a Philo, p. 6a.
rather small catapult of his day, allowing for change in the purchasing power of money, at about \$200.

The distance to which a missile could be cast was not more than 1200 ft.

- A. 37. a. The *scorpio* (Fig. 12) was a small catapult capable of being managed by one man. It consisted of a firm framework, on which was fastened a bow of steel. This was bent by a windlass, and shot its arrow (18 in. long) to a distance of some 300 to 400 ft.

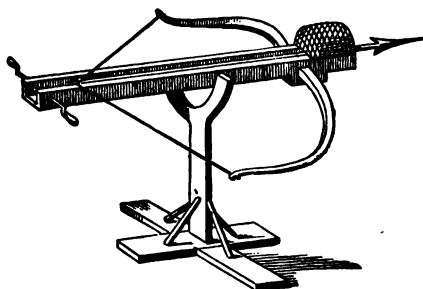


Fig. 12. *Scorpio*.

§ 26. The weight of the ballista was considerably greater than that of the catapult. At least six men would be required to manage the smallest.

The cost of course would depend on size. A ballista throwing a weight of 10 minæ (9 lbs.) perhaps cost \$1600 in Philo's time.

The range of the ballista was about the same as that of the catapult.

§ 27. The weight of the ancient artillery was considerably greater in proportion than that of modern times. A mortar throwing a bomb of 120-130 lbs. weighs about 40 lbs. A ballista which threw a stone of 135 lbs. weighed about 200 lbs.; *i.e.*, five times as much as the mortar.

This circumstance would of itself account for the fact that the Greeks and Romans made much less use of field artillery than do modern armies. Then, too, the clumsy construction of catapult and ballista made them much more difficult to transport than a modern field battery.

Another objection to their employment in the field was the long time required to make them ready.

§ 28. The main use of artillery, then, was to defend a fortified town or camp. In almost every fortified town of the Greeks or Romans, they were kept in considerable numbers; and when needed for siege operations were obtained from such towns. The walls of a camp were often defended by what we might call light artillery, catapults of small caliber and scorpions. Sch. 5.
B.G. II, 8.

In attacking fortifications the ballista was used to break down the battlements, the catapult to sweep the wall of defenders and thus protect the column of assault or the workmen busied with the *agger* or the battering-rams.

Ships of war were often provided with artillery, sometimes placed on towers. These were used, not merely against a hostile fleet, but often against an enemy on the land. B.G. III, 14
IV, 25.

There seems no doubt that artillery was conveyed with Cæsar's army in the field. Rüstow's statement to the contrary is certainly erroneous. Quite likely a certain amount was assigned to each legion; though of this we have no certain evidence. Whenever the army took a position of defence, the artillery, posted behind the legionaries, played a prominent part.* The walls of the camp were often lined with *catapultæ* and *ballistæ*. B.G. II, 8;
C. 51, 56;
A. 31, 77;
Al. 9.
R. p. 26.
B.G. VIII, 14.
B.G. II, 8;
VII, 41, 81.

In the time of Vegetius (probably at the close of the fourth century A.D.) each legion was provided with 55 *carroballistæ* and 10 *onagri*. The *carroballista* was a small catapult, and the *onager* a light ballista. The *onager* (wild ass) was so called from the story that that animal in fleeing from its enemies cast stones against them with its hind heels. In the Austrian army, to-day, 112 pieces of artillery are attached to an army corps of about 50,000 men. Other nations employ about the same ratio. C. 51, 56.

* From this same passage (B. G. VIII, 14) we must infer that Cæsar took artillery from the camp and used it in the field.

8. THE STAFF AND STAFF TROOPS.

§ 29. The general staff of an army consisted of the commanding general, the legates, the quæstors, the assistants, the guards, and the engineers (*fabri*).

§ 30. The legates (*legati*) were men of senatorial rank, who were assigned to the proconsul in greater or less numbers by the senate. In military service they were the lieutenants of the commanding general, and were by him often placed at the head of detachments of one or more legions, with varying powers. But all their powers were derived from the general. Cæsar made a great improvement in organization by placing a legate regularly in command of each legion. Such legate was afterwards known, under the empire, as *legatus legionis*, by way of distinction from a legate with greater powers.

B.G. I, 52.
M. p. 457.

§ 31. The quæstor, assigned by lot to superintend the finances of a province, also had charge of the supplies of the army. In the execution of this duty he saw to the food, pay, clothing, arms, equipments, and shelter of the troops. To do all this, he must have had under him a numerous body of men. He filled the place both of adjutant-general and of quartermaster-general in a modern army.

§ 32. There always followed the general a number of young men as his attendants (*contubernales, comites prætorii*), who were volunteers, and who aimed to learn the art of war. They composed the nobler part of the *cohors prætoria*, or attendants of the general.

Many of them could be used as aids in the administrative department of the army, or on the field of battle. When they were very numerous, they were formed into detachments, or sometimes joined the body-guard, and could thus directly take part in battle.

§ 33. The inferior part of the *cohors praetoria* was composed of *apparitores*, lictors, scribes, and servants. There were also included the *speculatores*, or spies.

The *speculatores* were men selected for obtaining news and carrying despatches. They preceded a marching column, and also accompanied the flanks, at a considerable distance, so that no surprise or ambushade might be met. There were usually ten to each legion. Of course the commanding general had an indefinite number at his disposal.

M. P. 547.
B.G. II, 11

§ 34. By the *body-guard* we must understand, not choice legions, especially honored by the commander, as was the Tenth by Cæsar, but troops which constantly stood in a near relation to the general. In Cæsar's army these were, in the first place, mercenary troops, possibly small bodies of German cavalry, which he used as a personal escort; and, in the second place, the *evocati*.

B.G. VII,
13.

§ 35. The *evocati* were those who had completed their term of service and still remained with the army; or even having returned to their homes, had resumed their place in the ranks at the solicitation of their old commander. Such men, centurions and privates, must have been of priceless value to a general who aimed at sovereignty, as did Cæsar. They must have exerted much more influence on the mass of the army than could higher officers. They were on the same plane in every way as the common men, and so would more easily lead them to their own way of thinking.

C. III, 91.

The *evocati* in Cæsar's army were formed into a regular organization, divided into centuries. They enjoyed special privileges. Although footmen, they had not only pack-animals, but riding-horses as well, and used them on the march. They could thus also be employed by the general as orderlies, to carry commands, or as scouts. In battle the *evocati* were formed near the general, for the protection of

B.G. VII,
65.

his person. In their ranks were those of the *voluntarii* who were not otherwise employed, and who could have no better school in which to learn the art of war. These veterans, composing the flower of the whole army, were ready to give examples of courage to all.

§ 36. The engineers (*fabri*), at whose head was the *præfectus fabrum*, or chief of engineers, must have belonged to the staff. They were employed in building bridges, constructing winter quarters, and very likely in repairing weapons. We must notice that the main Roman weapon, the *pilum*, was useless after it was hurled; but when the victory was gained, the *pila* could be collected from the field, and no great skill or apparatus was needed to make them effective again.

l. V., 11.

ch. 9.

It must be noted that *fabri* were often called from the ranks of the legions. Very likely men expert for the duty immediately at hand were thus detailed, and, when the duty was completed, returned to their places in the ranks. Schambach thinks that the artillery was managed by details from the infantry, as was done in the main in modern armies so late even as the middle of the eighteenth century. In that case it is clear that the men detailed must have been of sufficient intelligence and mechanical skill not merely to use the *tormenta*, but also to see to their repair.

§ 37. There is some doubt as to the composition of the *antesignani*. Göler thinks that the term applies merely to the four cohorts that formed the first line.

It is Rüstow's opinion that they were a detachment separate from the cohorts. Each maniple possibly had one *contubernium*, or ten men, of *antesignani*, chosen for their experience and efficiency. When needed they could move out from their cohorts in front of the legion, and act as light troops, or skirmishers. They would be more valu-

able and steady for such service than the auxiliaries, and could form a valuable support for cavalry. On the march they were always without heavy baggage (*expediti*). This service furnished abundant advantages for training sub-alterns; and Cæsar himself regarded the body as a school C. I, 57. for centurions.

II. THE LEGIONARY.

§ 38. The main strength of a Roman army was in the legionary infantry. Of these, naturally, then, we have the most satisfactory accounts. About the auxiliary troops, cavalry and infantry, we have already spoken (§§ 17, 18). Of the legionary, we must now speak more in detail.

1. ENLISTMENT.

§ 39. In the earlier days of the republic the army was a compulsory levy of all the able-bodied male citizens of suitable age. None but Roman citizens were admitted to the legion. All Roman citizens must serve. At the close of the campaign the troops were disbanded, and returned to their homes and their usual avocations. Thus the army was a body of *citizen soldiers*, or *militia*.

But with the great increase in the number of citizens, especially after the social war, only a part were needed for military duty; and at the same time a plenty were found who were willing to enter the service, led by hope of gain and glory. So the armies became less and less a levy of citizen soldiery, and more and more a body of mercenary volunteers. (From this fact certain results speedily appeared.) As the Roman army grew to be a disciplined organization of professional soldiers, it became all the more effective; and the men were the more readily attached to their chosen leader. Meanwhile the peaceful citizens who remained at home, to a great degree lost that military spirit and knowledge which had always before characterized the Roman people. Thus the way was paved rapidly and surely for the coming of a military despotism.



The Legionary.

NOTE. — The *pilum* and *braccae* belong to the time of the empire.

To face page 30.

§ 40. The enlistment of barbarians in the legions of Cæsar, however, was altogether exceptional. We do read of one legion, the Alauda, which was wholly composed of barbarians. Yet it is undoubtedly substantially true that Cæsar's legionaries were enrolled from Roman citizens, and spoke the Latin tongue.

§ 41. The second condition of enlistment in the legions was that of age. This we know in the early centuries of Rome was from 17 to 46. In all probability these were the limits in the time of Cæsar. In the army of the United States, in the time of war, the age of the recruit must be between 18 and 45.

§ 42. In the third place, those only would be enlisted who had sound bodily health, and were of suitable size. What the limit of height was in the Roman army we do not know. In our infantry no one is received whose height is less than 5 ft. 4 in., or more than 5 ft. 10 in. From the fact that the legionary fought with sword and spear, (instead of with the breech-loading rifle of modern wars,) we may infer that he must have been more muscular and agile than is now necessary; but we cannot infer that he was of unusual size. On the contrary, there is little doubt that the soldiers who conquered the world for Cæsar were as a rule rather undersized. The historians always emphasized the bigness of the Germans; and Cæsar expressly mentions the small stature of his troops. The Romans had learned the lesson of civilization, that victories in war are gained, not by huge bones and big bodies, but by the trained skill of scientific organization and tactics. Any one of the German giants might perhaps have been more than a match for any individual of his puny Italian enemies; but the barbarian mob of Ariovistus was shattered when hurled against the spears of the legions.

T.G. I, 4.
B.G. I, 39;
II, 30.

2. CLOTHING.

§ 43. All the soldiers of the legion were clothed, armed, and equipped alike (Legionary p. 30, and Fig. 8). Next the skin was worn a sleeveless woollen shirt (*tunica*). Over this was a leathern coat strengthened by bands of metal across the breast and back and over the shoulders (*lorica*). The troops in Trajan's column are represented with tight-fitting trowsers (*braccae*) extending below the knee. It seems likely, however, that these did not come into use among the Romans until after Cæsar's time. Strips of cloth were quite probably worn wound around the thighs (*feminalia*) and around the shins (*cruralia*). The feet were protected by sandals (*calcei*), or by strong shoes not unlike those worn at the present time. Then, in cold or wet weather, the person was covered by the military cloak (*sagum*), a sort of woollen blanket. Of course this was laid aside in battle.

3. ARMOR.

§ 44. The defensive armor consisted of helmet, greaves, and shield.

a. The helmet of the legionary (The Legionary, p. 30) was either of iron (*cassis*), or of leather or cork strengthened with brass (*galea*). That of the officer was distinguished by a plume of red or black feathers (*crista*).

b. The greaves (*ocreae*) were of bronze. They were used to protect the leg below the knee, and were held in place sometimes by straps, sometimes by their own stiffness. Usually but one was worn, on the right leg, as this was the one advanced in the fight.

c. The shield (*scutum*, Fig. 13) was of wood, covered with leather or with iron plates. In the centre was a boss

(*umbo*), which was merely a knob designed to strengthen and bind all together. The shield was about 4 ft. long and 2 ft. wide. Often it was curved so as partially to encircle the body. On the outside was painted the badge of the cohort—a wreath or a winged thunder-bolt, for instance. On the inside was the name of the soldier, with the number of the cohort and century, or manipule; perhaps also the number of the legion. For protection from dust, rain, and the like, during the march the shield was kept in a leathern case.



Fig. 13.

4. ARMS.

§ 45. The offensive weapons were the sword and spear.

a. The sword (*gladius Hispanicus*, Fig. 14) had a blade about 2 ft. long, and several inches wide. It was two-edged and pointed, being thus adapted either for cutting or thrusting. The latter, however, was its customary use. What fearful wounds could be inflicted with this weapon we may see from Livy, 30, 34.

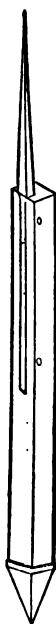


Fig. 14. It hung seldom from a body belt, generally from a shoulder belt (*balteus*). This passed over the left shoulder. Thus the sword was on the right side, this being more convenient, since the shield was carried in the left hand. As the higher officers had no shields, they wore their swords on the left side, and a dagger (*pugio*) at the right.

b. The spear (*pilum*, Fig. 15) was the characteristic weapon of the legionary. We have no exact account of it as it was in the time of Cæsar. From the way in which he mentions its use, however, we may infer that it did not

materially differ from the pilum of days not very remote from his, and of which we can form some tolerably definite idea.

VI, 23.



The pilum of the time of Polybius had usually a square wooden shaft, $4\frac{1}{2}$ ft. long and $2\frac{1}{2}$ in. thick. On one side was a groove extending half the length of the shaft, to receive the iron. This latter was also $4\frac{1}{2}$ ft. long. One half, square in shape, was fitted into the groove, and held in place by two iron nails. The other half, of pyramidal form, projected from the wood and was sharpened at the end. At the base of the shaft there was undoubtedly an iron shoe, so that in camp or bivouac the pilum might be thrust into the ground. The length of the entire weapon appears then to have been $6\frac{3}{4}$ ft., and the weight can hardly have been less than 11 pounds. Rüstow considers this (Fig. 15) to have been essentially the pilum of Cæsar.

The researches of Dr. Lindenschmidt leave little doubt as to the pilum used during the empire (Fig. 16). The iron was longer than the shaft, with a distinct head, which produced the effect of barbs. The entire weapon was probably somewhat lighter than that of Polybius. It was much like a modern harpoon.

Polybius says that, besides the heavy javelin, the soldier carried also another lighter one. Cæsar makes no mention of a second pilum, and all the circumstances of its use lead us to think that his legionary

Fig. 15. undoubtedly had but one. This, says Rüstow, was probably the heavy one. It seems quite as likely that when the light spear (designed, of course, to be used first, as it could be cast to a greater distance) was discarded, the heavy one was somewhat reduced in weight, so as to increase its range. This reduction could not have been so great, however, as materially to impair its efficiency.

In the time of Marius, the upper of the two nails which held the iron in place was of wood. When the missile struck, this pin would be apt to break, and the momentum of the shaft would cause the iron to bend, thus making it useless to the enemy. Cæsar makes no mention of the wooden pin, but he often speaks of the bending of the iron

Fig. 16.



3. I, 25.

We can hardly infer, as does Rüstow, that the wooden pin was not used in the *pila* of Cæsar. On the contrary, so many other contrivances of the sagacious Marius were retained, and so few years had elapsed from his day when the Gallic wars began, that it seems altogether probable that the *pilum* of Cæsar was quite the same as that of Marius. At any rate, had Cæsar contrived, or even authorized, any material change in this most important weapon, we can hardly doubt that a writer so scrupulous as he in assigning to the conqueror of Gaul his full meed of praise would have been very careful to narrate this instance also of his hero's ingenuity.

The bending of the iron clearly implies that it was comparatively slender and soft. So we may conclude that it was hardened only at the end. Now this bending, accomplished in the *pilum* of Marius by the breaking of the wooden pin, would have resulted in that described by Lindenschmidt, from the extreme slenderness of the iron as compared with the shaft; and this slenderness would have been made possible by the head, which was of sufficient size and hardness not to be affected itself by the impact.

The point of bending in the *pilum* of Marius was undoubtedly in the part of the iron which lay in the wood; that of the later *pilum* was as undoubtedly above the shaft.

The history of the *pilum*, as we get glimpses of it from time to time, certainly shows a slow evolution. In the light of this fact, it seems probable that in the time of Marius and Cæsar it held an intermediate position between the heavy and somewhat clumsy spear described by Polybius and the more elegant javelin of the later empire. The shaft was probably round. The iron was in all likelihood fitted in a groove, and not in a socket. Where it entered the wood, the head of the shaft was probably protected. The iron was slender, easily bent, hence hardened only at the end and provided with a head. The weight need not have been more than two or three pounds less than that estimated by Rüstow.

Lindenschmidt objects to this estimate (11 lbs.) that it was too great for comfort in carrying, and for hurling to any distance. The first objection is trivial, that being just about the weight of the modern musket. And the trained muscles of the Roman veteran could have found little difficulty in hurling an eleven-pound spear with force to a distance of many feet.

took turns in leading, so that each in turn might come first to the camp.

4. CROSSING STREAMS.

§ 143. Rivers were crossed either by *fords* or by *bridges*. The Romans could cross deeper fords than we, as they had no powder to keep dry. Cæsar preferred fords whenever practicable, as they required no previous preparation. Sometimes an artificial ford was made. Often, when the current was strong, a line of cavalry was stationed up stream from the point of crossing, and another line down stream, and the infantry crossed in this shelter. The upper line of cavalry broke the force of the current, and the lower line saved any men who were carried from their footing.

§ 144. When fords were not available, bridges had to be built. These were of many kinds. The simplest were to cross a mere ravine, and consisted of long tree trunks covered with branches and earth. The most elaborate of which we know was the footway 40 ft. wide with which Cæsar twice spanned the Rhine. A river in Spain he bridged by sinking baskets filled with stones, as foundations for his piers. Other streams were crossed by bridges of boats. A bridge of any importance had to be protected by strong fortifications at each end; and, when it was desired to retain it, these were held by suitable garrisons (*praesidia*).
 V, 17: Cæsar's bridges on the Rhine (Fig. 26) were of this description. They were masterpieces of military engineering, and were held securely while the army moved into Germany.

C. THE CAMP.

§ 145. The Romans distinguished two kinds of camp: the field, or summer camp (*castra aestiva*), made at the close of each day's march, to be abandoned the next morn-

ing; and the winter camp (*castra hiberna*), in which the army spent the time between two campaigns.

§ 146. We have no exact account of the camp in the time of Cæsar. Our only complete information on this subject, in fact, is of the time of the second Punic war, given by Polybius, and in the time of Trajan, by Hyginus. Rüstow interprets by the following rule: Whatever is com- R. p. 75. • mon to both may be set down at once as true of Cæsar. Where the authorities differ, Hyginus may be preferred, as the organization of the army in the time of Polybius differed more from that of Cæsar than did Trajan's. However, Cæsar customarily used fewer auxiliaries than did Trajan.

I. THE SUMMER CAMP.

I. *The Site.*

§ 147. When possible, the camp was always placed on the slope of a gentle hill, so that its front had before it still a portion of the descent, and its rear lay on the summit. Thus the legions could pour from the gates and form against an approaching enemy in readiness to make their favorite onset down hill (*ex loco superiore*). If at the foot of the declivity was some obstruction, as a stream or a morass, it was all the better. At any rate, there should be before the camp room for the accustomed order of battle. Of course water was necessary. Therefore the camp was usually placed on the sloping side of the valley of some stream. If the army had to cross a river, the camp could be made on either side. But the conditions were usually best met by placing it on the hither side. Much wood, too, was needed, for cooking, and for the various uses to which it was put in the fortifications. But yet the camp must not be so near a forest as to allow the enemy to collect in numbers under its shelter, and then make a sudden onset.

B.G. I, 24;
II, 5, 8, 24;
III, 19.

the private. The former seems likely to have been the ordinary relation of the pay; especially as we must remember that the centurion stood in rank and duties about midway between a sergeant and the captain of a company in a modern army. In the army of the United States, the private of infantry is paid \$13.00 a month; the sergeant \$17.00; and a captain receives \$1800 a year. All are provided with food, clothing, and shelter. A day laborer in most of our cities can earn about \$1.50 a day; about the rate of the private in the army, considering that the laborer has to provide for himself.

8. DISCIPLINE.

§ 53. During the civil wars, the stern discipline of the old Roman armies became much relaxed, and commanders had to resort to all manner of means to hold their armies in order. The transition from a citizen soldiery to a mercenary army, on the other hand, paved the way for a discipline more unrelenting than ever.

Lange, pp.
26 seqq.

But the best means of maintaining order then, as now, lay in constant employment. On the march, the daily fortification of the camp left the soldier little time to think of anything but his duty. On occasion of a longer pause than usual, the camp was to be further fortified and arranged, and guard duty must be performed constantly. The Roman method of war made the personal activity of the man an indispensable condition of success. Hence constant practice in the use of weapons was necessary; and this would quite fill out the time.

A. 71, 72.

Then, too, zeal and courage were rewarded no more by mere crowns of leaves, but by more substantial gifts in good coin. So we see that the Roman general was not confined for his discipline to mere brutality.

When generals endeavored to attach their soldiers to their persons, they had to allow them far more license than mere

discipline would warrant. Violence to the conquered, misuse of power towards them, robbery and plunder, were at times allowed. What the Romans regarded as purely *military* crimes, such as mutiny, desertion, cowardice, abuse of authority in the army, were punished severely; not infrequently the penalty was death.

Suet. *Cæs.*
67, 69.
A. 46, 54.
C. III, 74.

In a modern army, comparatively trivial offences, such as drunkenness, for instance, are often punished by detention in the guard-house, and sentence to some disagreeable labor, as cleaning the camp, or the like. Expedients like this must have been used in ancient armies as well.

III. TACTICS OF THE LEGION.

§ 54. The *tactics* of a body of troops consists of their arrangement for battle and their movements in the fight, their order of march, their disposition in camp, and all evolutions in passing from one of these forms to another. The *order of battle* is chiefly important, because all the other formations are made with reference to this: and to understand the order of battle of any organized body of soldiers, we must first of all study the arrangement of the *tactical unit* of that body.

MILITARY TERMS.

§ 55. We must explain a few military terms in common use.

1. *English.*

A *tactical unit* is a body, of a number of which a larger body is composed, and which, in relation to that larger body, is thought of as undivided. The tactical unit of the legion was the cohort; of the cohort, the maniple, etc.

A body of troops is in *line* when the greatest extent of the body is at right angles to the direction in which they are facing (Fig. 18); in *column*, when the greatest extent of the body is in the direction in which they are facing (Fig. 21).

Troops are said to *deploy* when they pass from column to line, *retaining the same facing*. In Figure 20, the cohort is marching in column. If they simply halt and face to the left, they are in line of battle, as in Figure 18. This they have done without deploying.

Alignment is making a line of troops straight.

A soldier is said to *face* when, standing still, he merely turns on his heel (to the right, or left, or entirely about).

Fascines are bundles of brush bound together. They are often used for filling a ditch.

Fig. 22.
Cohort (§ 76).
Fig. 21.
Cohort (§ 74).

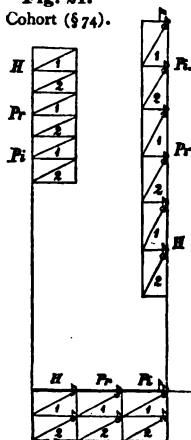


Fig. 18. Cohort (§ 62).

2. *Latin.*
Aciem instruere, to form line of battle.
Aciem dirigere, to align the front.
Cohortes disponere, to deploy the cohorts.
Consistere, to halt.
Legiones explicare, to deploy the legions.
Torquere agmen ad dextram (sinistram),
to change the direction of the march (right or left).

A. ORDER OF BATTLE.

I. THE COHORT.

§ 56. The tactical unit of the legion of Cæsar was the *cohort* (§ 6). The men of any one cohort as a rule remained

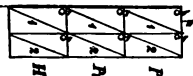


Fig. 20. Cohort (§ 73).

together, and all movements of the legion were made by cohorts.

We may estimate the front of a cohort in line of battle at 120 ft.

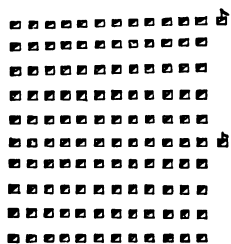
§ 57. In all estimates of extent of the legion in battle, march, or camp, we follow Rüstow's figures, which are based on the average field strength of the legion, 3600 men, not on its nominal, or full, strength.

In relating a fight at Ilerda, in Spain, Cæsar states that his troops were drawn up across the top of a ridge, along which the enemy were advancing. He then says that this ridge was just wide enough for *three cohorts in order of battle* (*tres instructae cohortes*, C. I, 45). The ridge is readily recognized to-day, and measures just about 360 feet across. The circumstances of the fight were such as to leave no doubt that the cohorts were drawn up without any intervals between them; so that this measure gives us the actual front of the cohorts. Thus we get the estimate of 120 ft. for the front of one cohort.

The three maniples of a cohort might have been arrayed side by side, or one behind the other. Rüstow holds to the former arrangement, and Göler to the latter. The reasoning of Rüstow (R. p. 36

seqq.) seems conclusive, in the light of our present knowledge; and we have adopted the arrangement of the maniples side by side. In that case the two platoons (*centuriae, ordines*) of each maniple doubtless stood one behind the other.

§ 58. Assuming the three maniples to have been arrayed side by side, this would allow 40 ft. as the front of each maniple. Allowing 4 ft. for the interval between each two maniples, in



which intervals the centurions were probably placed, and a corresponding distance of 4 ft. for the centurion on the right of the maniple which formed the right of the line, there would be left 36 ft. front in each maniple for the privates. As each private would require at least 3 ft.

Fig. 17. *Maniple.*

of space, the maniple would consist of 12 files (Fig. 17).

§ 59. In military language, a *file* is a number of men in a single line, placed one behind another. A number of men in a single line, placed side by side, is called a *rank*.

The interval of four feet between the maniples would be none too much for the centurions. The officer would naturally need more room than a private, as his attention must not only be given to the enemy, but also to his own troops down the line to his left. So it seems likely that the first centurion was at the right of the front rank of the first platoon (*ordo*), and the second centurion at the right of the front rank of the second platoon. Thus the latter officer could keep to their duty the men behind the fighting line, and could see that vacancies ahead should be promptly filled.

§ 60. The distance from breast to breast, in the file, was probably at least 4 ft. Thus the file was 10 men deep (*i.e.*, there were 10 ranks), and the maniple would form a square of 40 ft. on a side.

In the United States army, the breadth of a man is taken at 22 in., his depth at 12 in.; and there is a distance between ranks, in column

of march, of 32 in. from back to breast, or of 44 in. from heel to heel. In line of battle, the distance from back to breast is 22 in., from breast to breast 34 in. (*Upton's U.S. Army Infantry Tactics*, 65, 209).

§ 61. We have assumed that each man in the front rank of the maniple occupied 3 ft. This would be sufficient space to march without being crowded, and to throw the *pilum*. It would not give room, however, for using the sword. Vegetius says that each man needed 6 ft. for that purpose. The men in each rank were numbered, from right to left; and at the command ("*Laxate manipulos*") each odd number stepped forward, thus gaining the desired space. B.G. II, 25

§ 62. By our estimate, a cohort in line of battle would form a rectangle, 120 ft. front by 40 ft. deep (Fig. 18). The maniple would contain 120 men, and the cohort 360, exclusive of officers.

2. THE LEGION.

§ 63. The order of battle may be offensive or defensive. When arrayed for the first purpose, the legion formed either two lines (*acies duplex*), or three lines (*acies triplex*).

§ 64. In the *acies duplex* there were 5 cohorts in each line.* When the legion was in 3 lines (Fig. 19), 4 cohorts were placed in the first (*acies prima*), and 3 in each of the others (*secunda* and *tertia acies*). Between the cohorts in the first line were intervals equal to about the front of the cohort (120 ft.). Behind these intervals stood the cohorts of the second line. The third line was still further in the

* C. I, 83. *Caesaris triplex (acies fuit); sed primam aciem quaternae cohortes tenebant, has subsidiariae ternae et rursus aliae totidem suae cujusque legionis subsequebantur; sagittarii funditoresque media continebantur acie, equitatus latera cingebat.*

rear, and was used as a reserve for the support of the other two. The most experienced and reliable soldiers of the legion were in the four cohorts of the front line.

Fig. 24.

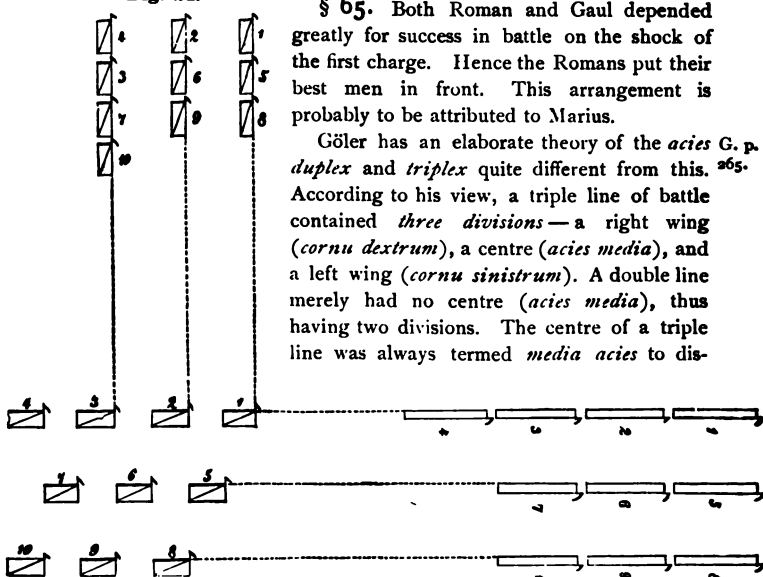


Fig. 19.*

Fig. 23.

Fig. 19. Legion in triple line of battle.

Fig. 23. Legion marching in lines (§ 82 a).

Fig. 24. Legion marching by wings (§ 82 b).

tinguish it from the middle line of the cohorts of a legion, *secunda acies*. Each division had a *legatus* in command.

This theory is hardly borne out by the facts. One who reads B.G. I, 49 with care will see that it would be very difficult to reconcile Göler's view with Cæsar's account. Further, in A. 13 we have a *simplex acies* with both right and left wings specifically mentioned; and in B.G. III, 24 a double line (*duplex acies*) has a centre (*media acies*). From these considerations it seems plain enough that Cæsar used the terms *right wing*, *left wing*, and *centre* quite as they are used of a modern army;

* These diagrams of battle and march are after Rüstow.

applying them in an indefinite way to those parts of a line of battle, but not necessarily implying distinct divisions under separate commanders.

§ 66. The distance between the lines was probably equal to the front of a cohort (120 ft.). Thus the entire depth of the legion in this order of battle was about 600 ft. The front would extend 840 ft., or, if supported by another legion, 960 ft., including the interval between the legions.

§ 67. For defensive battle the legion was arranged in one of two ways: in one line (*acies simplex*), or in a circle (*orbis*).

§ 68. The former was most commonly used to defend the walls of the camp (§ 153). Here a second line was unnecessary; and also considerable depth was needless. Five ranks (the depth of a single *ordo*) would do; one or two, according to the width of the wall, on the rampart, and the rest in reserve at its foot. Allowing 6 ft. (instead of 3 ft.) for each man in the front rank, and arraying the *ordines* side by side, we see that a single cohort would cover 480 ft. of the wall, or a legion 4800 ft., allowing no intervals between the cohorts.

§ 69. This arrangement in one line without intervals was also used in the open field to meet an attempt at outflanking by superior numbers, and also to resist incursions of cavalry or light infantry through the intervals. In this case, however, the cohorts would have their normal front and depth, merely closing the intervals and thus giving the legion a front of 1200 ft. A. 13.

§ 70. The circle (*orbis*) was designed for use in the field in case of attack on all sides.

As the circumstances for which this arrangement was intended must have been essentially the same then as now, we may conclude that a cohort would form in a solid square, a smaller division in a solid circle, and a detachment of sev-

Also in the *praetentura*, along the *via principalis*, facing this and the middle of the camp, was the place for the tents of the *legati* and *tribuni militum*. Again, in each half of the *praetentura*, in the space enclosed by the cohorts along the wall, by the tents of the *legati* and *tribuni*, and by the *via principalis*, were encamped one-fourth of the cavalry and one-half of the archers and slingers. Thus in the entire *praetentura* were quartered one-half of the cavalry and all the archers and slingers, ready to move from the front gate and form the advanced guard.

§ 172. On each flank of the *mid-camp*, next the wall, was a line of cohorts: on each side one-tenth of the entire number in the army, or one-fifth altogether. Next the *praetorium*, along both its longer sides, were placed the staff, except, of course, the *legati* and *tribuni*. Between the cohorts that were along the wall and the staff troops, were encamped on each side one-fourth of the cavalry, or one-half in the whole *mid-camp*. Their front was towards the *via principalis*, unless there were gates at the ends of the *via quintana*. In that case one-half (or one-fourth of the whole) would front toward each street, and they would be ready to rush out at either side.

B.G. V, 50,
52.

In the rear part of the camp, on each side of the *quaestorium* and equally divided by it, lay the rest of the cohorts, about one-half of all in the army. Their front was towards the wall on the flanks and rear. Enclosed by these, by the *quaestorium*, and by the *via quintana*, was the place for the auxiliary infantry, excepting the archers and slingers.

§ 173. Entirely around the camp, within the wall, extended a broad street. This would at once prevent the likelihood of hostile missiles reaching the tents, and would allow room for moving troops to defend the walls. Polybius gives the width of this as 200 ft., and Hyginus, as 60. The

latter seems too small for all the movements of an energetic defence. As we know that in Cæsar's time much stress was laid on skill in defending the camp, we may conclude that this street was quite wide, probably at least 120 ft.

4. *Arrangement of the Cohorts.*

§ 174. The order in camp naturally depends on the order of march. It seems reasonable to conclude that this was usually in column of centuries. Hyginus gives the arrangement of a cohort of six centuries.

§ 175. The cohort encamped in a space of 120 ft. front and 180 ft. depth. This was divided on lines parallel to the front into 6 portions of 120 ft. by 30 ft. Each of these was for one century.

From the length of the front, 12 ft. are to be deducted for the street dividing the cohort from the adjacent one. That leaves 108 ft. for the tents. Each century had 8 tents: 6 for the soldiers, 1 for the centurion, and 1 for the servants. As each tent is 10 ft. square, the length actually covered by tents would be 80 ft. This leaves 28 ft. for the 7 intervals between the tents, or 4 ft. for each interval. The 3 first centuries of the 3 maniples had their front towards the wall, and the 3 second their front from the wall. Thus the 2 centuries of one maniple would be stationed back to back. The second of one maniple would face the first of the next, divided from it by a street 12 ft. wide, parallel to the wall.

§ 176. From the 30 ft. depth of the space allotted to the century, 6 ft. must be allowed for their half of the street; 10 ft. for the tents; 5 ft., behind the latter, for stacking the weapons; and, finally, 9 ft. for the pack-animals. The several cohorts of a legion, according to the room, could be placed in a line, side by side, or in several lines. C. III, 76.

eral cohorts in a hollow square. This latter might have been made circular, to resist attack at the angles. A legion could form the square by placing the first, second, and third cohorts in front, the eighth, ninth, and tenth in the rear, the fifth and sixth in the right, and the fourth and seventh on the left. There would then be a front of 360 ft. and a flank of 320. The inner hollow space would be 280 ft. long and 240 ft. broad, thus making 67,200 sq. ft. This would contain more than 1000 pack-animals.

C. III, 89.

§ 71. Under some circumstances we read also of a quadruple line of battle. This was designed to meet a flank attack. Some cohorts were taken from the rear line (*tertia acies*) and placed in line on the right (or left) flank at right angles with the main line of battle.

B. THE ORDER OF MARCH.

The order of march is developed from the battle array. So we must begin with the cohort.

I. THE COHORT.

§ 72. The line of march (*agmen*) of the cohort was one of two, — *column of maniples* and *column of centuries*.

§ 73. The column of maniples (*manipulatim*) was formed from order of battle by merely facing to the right (or left). Thus the maniples, it will be seen, were in column (Fig. 20), and the centuries in each maniple were side by side. If the cohort was faced to the right, the order was *pilani, principes, hastati*. As the depth of the cohort in line of battle was 40 ft., of course the column of maniples was 40 ft. wide. But this was a loose order. Allowing 3 ft. to each man, the column could easily have been made only

30 ft. wide. And again, this wide column could have been reduced to half the width by the right (or left) century moving straight on, and the other falling in its rear. Instead of 12 ranks of 10 men, there would be 24 ranks of 5 men. This would make really a *column of centuries by the flank*.

§ 74. The *column of centuries* proper (*centuriatim, ordinatim*) was formed from the order of battle merely by having the maniple on the right (or left) wing of the cohort march straight forward, and the others successively follow. Thus the centuries would be arranged in column (Fig. 21); and the order would be *pilani, principes, hastati*, or the reverse, according as the right or left wing moved off first. The width of the column would be the same as the front of a maniple, *i.e.*, 40 ft., including the centurion on the flank.

§ 75. When a cohort marched directly forward, the column of centuries would naturally be adopted. In this order, then, it is likely that Cæsar marched across the Rhine. But we know that he made his bridge 40 ft. wide. It does not seem at all likely that this distance was that between the piles at the bottom of the river. As the water varied in depth, it could hardly be measured exactly, and different sets of piles quite likely had different distances on the river bottom. On the top, however, an exact distance could have been measured, and must have been preserved. Thus in Cæsar's bridge is another support of our estimate of the front of the maniple.

§ 76. If the march was on a regular road or street less than 40 feet wide, the breadth of the column could easily be reduced from 40 ft. to 20 ft. The right (or left) half of each century would move straight on, and the other half would fall in the rear (Fig. 22). Thus the century would consist of 10 ranks of 6 men each, instead of 5 ranks of 12 men each.

as the distance between their leading cohorts when in line of battle. Each cohort is in column of centuries.

§ 83. The march in square (Fig. 25) was employed for a similar purpose for which the *orbis* was formed. One division of troops, in columns of centuries, leads. Then follows the baggage train, and then a second division of troops in column of centuries. On either wing marches a body in column of maniples. Thus by a simple facing of the wings to the right and left, and deploying of the van and rear, the square is ready to meet the enemy.

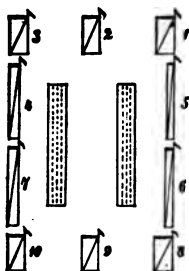


Fig. 25.

Legion in Square.

§ 84. These are conservative estimates. To compare the Roman army with one of modern days, we quote a very comprehensive calculation from the New York *Evening Post*. It must be remembered that an American brigade of four regiments corresponded very nearly with the Roman legion.

"A company of infantry moving in column of fours, the usual marching formation, takes up about 33 yards of depth. A regiment of ten companies will require 330 yards, a company of cavalry about 100 yards, and a battalion of four companies about 450 yards. A six-gun battery of field artillery in column of sections, and accompanied with the usual baggage, requires about 225 yards. From these figures we calculate the length of a column moving on a single road. An infantry brigade of four regiments will take up, exclusive of baggage, 1350 yards. The baggage, including ammunition, will require nine six-mule wagons to each regiment. Each wagon with its team requires 20 yards depth, and for the entire brigade the depth will be over 700 yards. Add this to 1350 yards, and we have nearly 2100 yards, or a mile and a quarter for the depth of the column. If we allow but three regiments to the brigade, we can reduce the depth to about 1,600 yards. For the baggage belonging to different headquarters we must allow a depth of 200 yards.

"Now, coming to a division of infantry, we have but to multiply the foregoing total by the number of brigades in the division. But when we take up an army corps, we have to make calculations for artillery and cavalry, extra baggage and supply trains. Suppose we take as a

maximum figure an army corps composed all told of 42,000 men. It has four divisions of infantry, eight to twelve batteries, and at least four regiments of cavalry. Were it able to march close up, on a single road, with all its trains, including reserve supplies, it would stretch out, at the least calculation, about eighteen miles. But it is impossible for a column of this length to keep from stretching, or "lengthening out," as it is technically termed, and so the best authorities make an allowance of 25 per cent, which, added to the 18 miles, makes 22½ miles, or a distance which would take a mounted messenger moving from the head of the column to the rear, if he made good speed and met with no obstruction, at least three hours to make, or moving from the rear to the head, nearly half a day.

"Gen. McClellan, in one of his reports, says: 'If I had marched the entire army, 100,000 men, in one column, instead of on five different roads, the column, with its trains, would have stretched out 50 miles.' In the Franco-Prussian war it was found that a Prussian army corps of 42,512 men, 90 guns, 13,800 horses, and 1300 vehicles took up on a single road 27 miles, 18 miles occupied by the troops and 9 miles by the trains.

"If roads were all broad enough and in good condition, columns could march with a far greater front, and the depth be vastly reduced. But in this country, at least, there are few roads where there is room for a column of greater width than a set of fours to move and leave sufficient space for the unimpeded progress of orderlies and staff officers, or for vehicles which have to go in an opposite direction. It may be asked why the column cannot be kept closed up, why it has to lengthen out? Sometimes a wagon breaks down. It is hauled to one side for repairs and the others pass on. But to haul it to one side consumes some time, mayhap only a few moments, and a few moments again when repaired to re-enter the column. The consequence is a halt of everything in the rear. Neither men nor horses can be marched steadily without a halt and rest every hour, and a halt at the head of the column, or in resuming the march, occasions loss of time to all regiments in rear, which cannot start at once, but must do so successively.

"Again, perhaps, a bridge has to be crossed, and time is lost by the breaking of step, or, perhaps, the change of formation. Perhaps a stream has to be forded, or some obstacle is met in the road. It must be remembered that, in addition to the actual distance accomplished in marching, many other things are required of the soldier. He has to go on guard or picket, he is sent out perhaps as a flanker or

sion, also, the tribunes on duty, and the general himself, would inspect the guard.

§ 186. If camp should be made in the presence of a threatening enemy, the usual vanguard would not be enough to cover the operation. One or two legions would then be deployed in line of battle to keep off the enemy, and a third would do the work of fortifying.

B.G. I, 49;
C. I, 41.

§ 187. The army might leave the camp either to attack a near enemy, or in order to continue the march.

a. In the first case, the tents were left standing, the baggage remained in its place, and a guard was left in charge. This guard might consist of a detail from each legion, or of entire legions. The latter would be likely to occur when there were legions of raw recruits present. These would naturally be left within the walls.

B.G. III, 26;
II, 8; C. I,
41, 64.

b. In case of continuing the march, the camp was abandoned. At the first signal (*signum profectionis*), the tents were struck; at the second, they and the rest of the baggage were packed on the beasts (*vasa conclamantur*); at the third, the march began. To conceal the departure from the enemy, the signal might be omitted. Yet it was deemed a point of military honor to sound it.

C. III, 85.

C. III, 37, 75.

II. THE WINTER CAMP.

§ 188. In winter quarters the Romans did not billet their soldiers in towns, but kept them together in winter camps (*castra hiberna*). When a portion of a town was needed, for strategical or other reasons, then the inhabitants had to leave, as we see in the case of Galba at Octodurus.

B.G. III, 1.

§ 189. The general arrangement of the winter camp must have resembled that of the *castra aestiva*. There must have been the same fortifications and streets. But doubtless the convenience of the men was more regarded than when

in the field. In place of tents (*tabernacula, pelles*), the winter camp afforded huts which gave better protection against wind and weather. The arms were doubtless kept in the huts, and the pack-animals in sheds. Also more room could be taken than in the field.

D. THE SIEGE.

§ 190. The Romans were accustomed to assail strongholds in three ways, — by blockade (*obsidio*), by assault ^{R. p. 137} (*oppugnatio repentina*), and by formal siege (*oppugnatio*).

1. *Blockade* was used against places of great strength, ^{B.G. VII,} especially if poorly provided with provisions; and further if ^{36, 69.} the location allowed a complete environment.

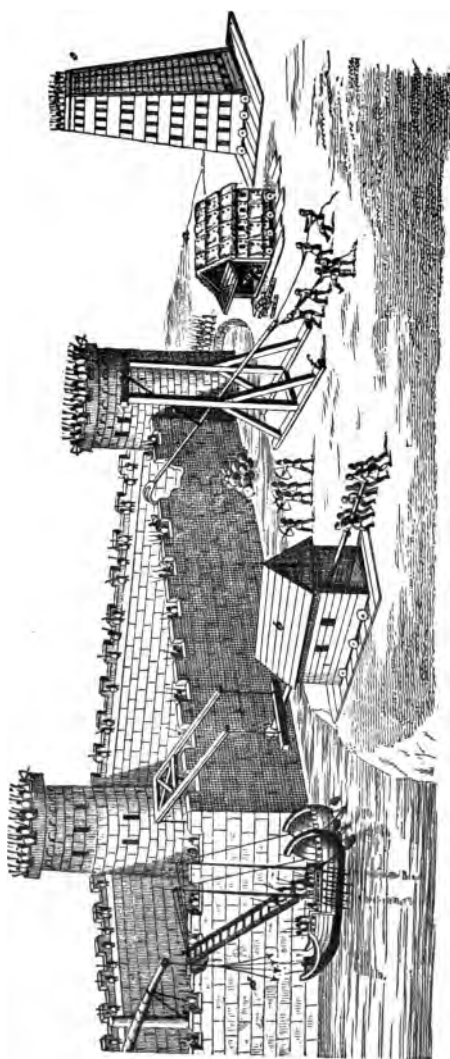
2. *Assault* (*oppugnatio repentina*, Fig. 32) was made on ^{c. III, 80} places of smaller importance, with weak fortifications, and well supplied with food. Of course emergencies might lead to the same method of attack on very strong places.

3. *Formal siege* was resorted to against positions that ^{B.G. VII} were strongly fortified and well provisioned, so that neither ^{11.} of the preceding methods was of avail.

I. BLOCKADE.

§ 191. The blockade was accomplished by means of the circumvallation (*circumvallatio*). The besieged place was ^{B.G. VII,} surrounded by fortifications. These consisted of strong ^{15.} redoubts (*castella*) at convenient places, connected by lines ^{C. III, 43;} of wall and ditch (*munitiones, brachia*).^{*} Outside of these ^{B.G. VII,} lines lay the camp, or camps, of the blockading army. If ^{69.} an attempt at relief from without was to be feared, another ^{B.G. VII,} line of works must be created, outside the first, and facing ^{68; C. III,} outwards. In modern warfare this latter line is called the ^{41.} *circumvallation*, and the inner one the *contravallation*. Cæsar does not use the latter term, and applies the former as has been explained.

* See Fig. 42.

Fig. 32. *Oppugnatio.*

a. Testudo aggestitia. *b.* Testudo arietaria. *c.* Turre ambulatoria. *d.* Corvus. *e.* Harpago. *f.* Fals muralis.

NOTE. — This cut represents an attack both by land and water, in which no *agger* is employed. While in these respects unlike the attack on the Gallic towns, it shows very clearly some siege implements in actual use.

§ 192. It is clear that the strength that must be given to the fortifications depends upon the relative strength of besiegers and besieged. If the besiegers are weak, their works must be correspondingly stronger.

§ 193. The redoubts (*castella*) were held by garrisons ^{B.G. VII,} (*praesidia*). These in the daytime merely threw out a line ^{69: C, III,} of sentries (*stationes*), which they were ready to support ^{65.} immediately. At night strong pickets (*excubitores*) occupied the works. In the redoubts were always ready the ^{C. III, 65.} means of making signal—smoke by day, and fire by night—in case of attack. Constant watch was kept lest at any point a sortie might be made by the enemy.

2. ASSAULT.

§ 194. The principal article used in assaults was the scaling-ladder. Breaching-huts (*musculi*, § 210) were also ^{C. III, 80.} used. These were low, small houses with sloping roofs, and built of strong materials, to resist the showers of missiles from the wall. These were pushed forward on rollers, and under their shelter battering-rams (§ 213) were brought to bear on the wall.

§ 195. As soon as the ladders were ready, the breaching-huts (§ 210), were built fascines and fagots were prepared for filling the ditch, and hurdles were made ready for protecting the archers and slingers.* These troops were then pushed forward, thus protected, in order to clear the walls of the defenders. Behind the missile troops were formed the legionaries, usually in several columns. Thus the attention of the enemy would be distracted, and at *one* of the points of attack success might follow. At the head of each column was a body of laborers with ladders and fascines. As soon as the archers and slingers had cleared the wall, the fascines were cast into the ditch, the ladders were set up, and the

* Also see § 28.

legionaries mounted to the attack. If a lodgment was effected, the assailants sought to spread out each way and gain a gate, in order to open it to their comrades. Meantime the battering-ram was at work at various points, that no resource might be wanting.

3. REGULAR SIEGE.

¹⁴² § 196. The principal work of a regular siege was the mound (*agger*, Figs. 33, 34, 35). This was always begun at a distance from the wall, very nearly out of reach of missiles.

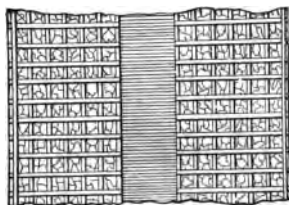


Fig. 33.
Horizontal Section of Agger.

It was then gradually extended in the direction of the point to be attacked, and was at the same time gradually increased in height until on a level with the top of the walls, or even higher. When this mound was completed, the storming party moved on its top to the attack.

§ 197. The height of the mound was often considerable. Before Avaricum it was 80 ft., and as much before Massilia. The length of course depended on the power of the enemy's missile weapons. It seems probable that those built in assaulting the Gallic towns would not have been very long. The least distance from the enemy at which the construction could have been begun was from 400 to 500 ft.

§ 198. The width above must have been enough for a storming column, very likely of the usual formation. If we take this to be the front of a maniple, the least breadth would have been 50 ft. The sides might be quite steep, as we shall see further on. A fabric 80 ft. high and 50 ft. wide on top might have been 60 ft. wide on the ground.

§ 199. To the building of the *agger*, it must be remembered, everything else in the siege was subordinated.

By way of preparation for its construction, first of all the ground must be levelled for the foundation. This could be done by workmen protected by *vineae* (§ 211), stout movable sheds. Then the workmen, both those building the *agger* and those providing the material, must be guarded from the missiles of the enemy. The former were protected by *plutei* (§ 214), large standing shields, which could be advanced from time to time. The others brought the material in covered galleries. These were composed of a series of *vineae* reaching to the point of beginning the *agger*. Also, the workmen were protected by archers, slingers, and artillery, drawn up parallel to the hostile walls. The archers and slingers were themselves protected by *plutei*; the artillery was placed usually in moving towers. These parallels must have had covered approaches of long lines of huts. Under shelter of these, also, were posted bodies of legionaries (*cohortes expeditae*), to cover the operations and resist sorties. Farther in the rear bivouacked strong bodies of troops, outside the camp, ready to support.

R.K. p. 370

B.G. II. 30;
III, 21; C.
II, 2.B.G. II. 30;
III, 21; VII,
17, 18; C. II,
24.B.G. VII,
27.B.G. VII,
24.

§ 200. The strength of the various protections would of course depend on the power of the enemy's missiles. Usually the side walls of the *vineae* were only of a sort of wattled work. Before Massilia, however, all the covering devices had to be made of logs of considerable thickness.

C. II, 10.

§ 201. Sometimes towers (*turres ambulatoriae*) were placed on the *agger*. In such cases the top of the *agger* was designed to be a smooth roadway; and the height needed only to be enough for the tower to have sufficient elevation. This probably was a quicker way of approach, as it saved building a considerable part of the *agger*; but it was not so convenient for a column of attack. As a rule,

B.G. II, 30,
31; VIII, 41.

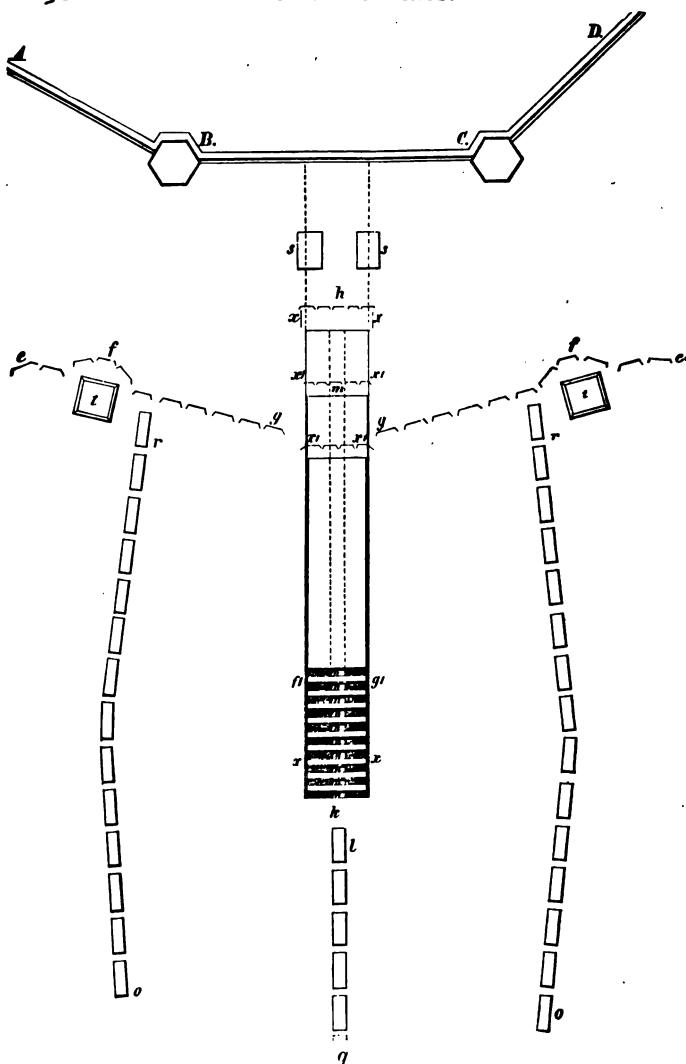


Fig. 35. General View of Siege Operations.

ABCD. Hostile wall. *s s*. *Testudines aggestitiae*, protecting those levelling the ground. *h k*. Agger. *x r. x r.* &c. *Plutei*, protecting those working on the agger. *e f g*. Line of *plutei*, manned with archers and slingers. *t t*. *Turres*, also manned with archers and slingers not provided with *tormenta*. *r o*. Covered way of *vineae*, giving approach to archers and slingers. *l g*. Covered way of *vineae* approaching the point of beginning the agger. *f g*. Position of *plutei*, covering the beginning of agger. *m n*. Covered gallery through the agger. *n n s*, &c. Steps and platforms of the several stories.

First of all a line of breaching-huts is moved forward so as to make a safe gallery through which to convey material. Then at a distance of perhaps 30 ft. in advance of this point is placed a line of large shields (*plutei*, *x*) at right angles to the line of huts, and longer than the width of the *agger*. These shields must be strong enough to turn the hostile missiles and high enough to protect the space of about 30 ft. between them and the huts. In this space thus protected the workmen set about the *agger*. The material with which they work consists principally of logs 20 to 30 ft. long, and from a foot to a foot and a half thick. These are piled, cob-house fashion, in successive courses, each course crossing the one below it at right angles. In the middle is left a passage (*mn*) 10 or 12 ft. wide. This passage when covered is to form a gallery through which is carried the material for continuing the work. The spaces between the logs are filled with stones, sods, and earth. When the structure has reached a height of about 7 ft., a course of logs (*op*) is placed close together across the whole. This at the same time covers the gallery and serves as a floor for the second story.

This completes 30 ft. of the first story. The shields (*plutei*) are now pushed on 30 ft. farther, and the work continued, material being brought through the line of huts and through the covered gallery in the portion of the *agger* already constructed. In like manner the work is pushed on by successive stages of 30 ft. each.

§ 205. Meanwhile at the point of beginning steps are made so as to mount easily to the second story. When the first story has advanced perhaps 100 ft., a transverse row of *plutei* (*k*) is placed on its flat roof, and a second story is begun and pushed on in like manner as the first. The beginning of the second story is far enough forward of the beginning of the first to leave a sufficient space, not merely

for the steps, but also for a platform (*fg*) leading to the entrance (*n*) of the second gallery. Meanwhile, the outer sides are covered with green hides, as a protection against fire.

§ 206. Thus the work goes on, story by story, until the *agger* has reached the required height. Each story has its gallery running throughout its length, its platform, or landing, and steps leading to the story above.

§ 207. We come now to that part near the enemy's wall, which can only be made by pouring in material helter skelter. When the *agger* has reached a height of three or four stories, and has been brought as near the enemy as is consistent with the safety of the workmen, then a great quantity of rubbish, wood, bundles of straw, stones, sod, and the like, are brought through the various galleries and cast out through the openings (*m*), until the space between the *agger* and the wall is quite filled up.

§ 208. The great size of the *agger* is enough to show that wood was largely used in its construction. Then, too, wood is on the average only one-third as heavy as earth. It can therefore be gathered and transported more easily. Also, the side walls of a wooden *agger* can be much steeper than if of earth. An *agger* of earth, 50 ft. wide on the top and 80 ft. high, should be 210 ft. wide at the base, and therefore 130 ft. wide at the middle point of the height. One of wood would need to have an average width of only 55 ft.

An *agger* of earth of the above dimensions and 600 ft. long, would require 6,240,000 cu. ft. of earth. The mere excavation of this mass would take 1000 workmen at least 20 days.

b. Siege Apparatus.

§ 209. The principal work of a regular siege was the *agger*, by which safe approach was made to the hostile wall.

Subsidiary to this were various other means of protection and offence.

§ 210. The *musculus* was a hut, which could be moved on rollers, for the protection of workmen from the missiles of the besieged. There were two forms.



Fig. 36.

a. The first form (Fig. 36) was used by workmen engaged in levelling the ground for the *agger*, or in filling up the enemy's ditch. It was wedge-shaped, and built of strong

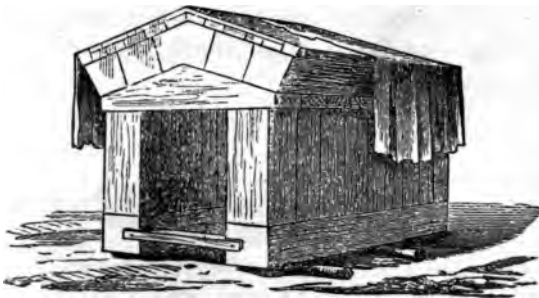


Fig. 37.

timbers covered by heavy planking. The forward end was constructed of two triangles put together, so that missiles would glance off.

b. The second form (Fig. 37) was used by pioneers who attempted to dig out the foundation stones of the hostile wall. As it came so near the enemy, it had to be very strong, to resist the heavy stones thrown down from the bat-

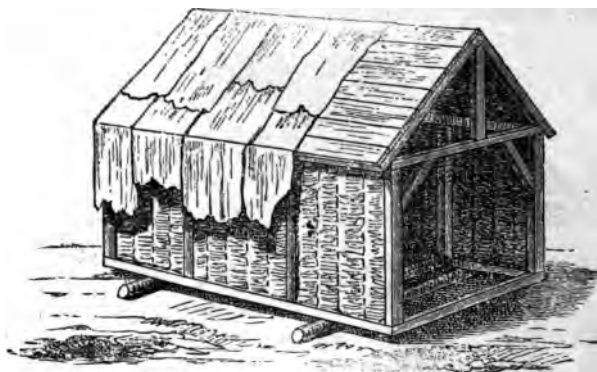


Fig. 38.

C. III, 10. tlements. Those used in the siege of Massilia were probably 20 ft. long, 5 ft. high, and 4 ft. broad, built of timbers 2 ft. thick. Besides, the roof was covered with bricks and clay, to guard against fire, with hides over all, to prevent the clay being washed off by water.

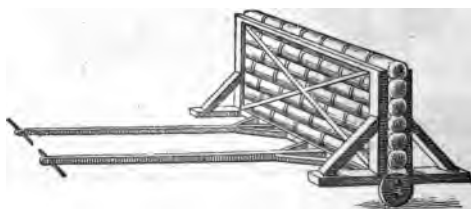
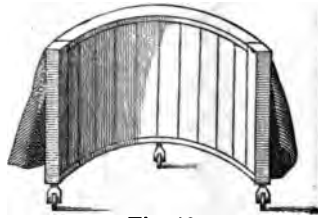


Fig. 39.

§ 211. The *vineae* (Fig. 38) were huts, open at each end, designed to form a safe passage-way to the *musculus*, or to any point where the siege work was going on. As they

were not brought so near the enemy as was the *musculus*, the *vineae* did not need to be so strong. By the description of Vegetius, the *vinea* was 16 ft. long, 8 ft. high, and 7 ft. wide, the side walls of strong posts connected by vaulted work, and the roof by a double thickness of planking. It will be seen that the *vinea* was more roomy than the *musculus*, being used merely as a passage-way. Often the roof was covered with green hides, to guard against fire.



V. IV, 15

Fig. 40.

§ 212. The *testudo*. (Fig. 32, *b*) was a hut, much like the *musculus*, from the front of which, however, projected the battering-ram (*aries*). The ram was suspended from the roof of the hut, and was worked by a number of men thus protected.

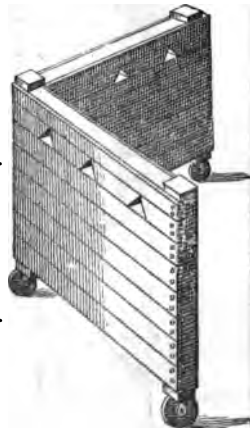


Fig. 41.

§ 213. The battering-ram* (*aries*, Fig. 32, *b*) was a long, heavy log of wood, the offensive end of which was strengthened by a head of metal (iron or bronze), sometimes in the shape of a ram's head. Suspended at its middle point from the roof of the hut (*testudo*), it was driven with considerable force against the wall. The ram has been found quite effective in disjoining stones, although its force is small compared with that of a cannon shot. The momentum of a ram 28 in. in diameter and 180 ft. long,

* See § 222, at end.

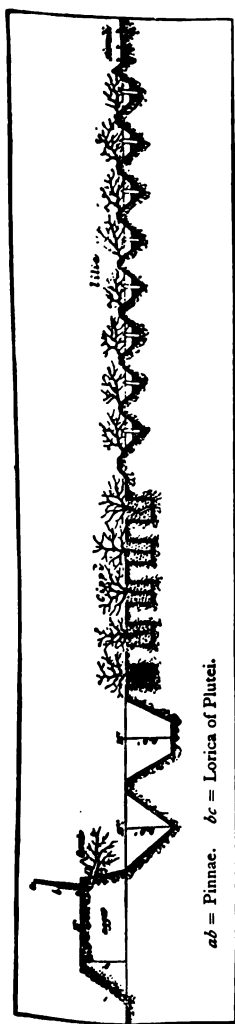


Fig. 42. Section of Cæsar's Circumvallation at Alcala.

NOTE. — The *Cipri* were branches of trees partly buried in trenches: the *lilia* (Fig. 43) were little pits with a sharp stake set in each, covered loosely with twigs and brush; the *stimuli* were sharp hooks projecting from the ground; the *cervi* were branches projecting horizontally from the wall.

weighing 41,112 lbs. and worked by 1000 men, is only equal to a point-blank shot from a 36-pounder.

§ 214. The movable tower (*turris ambulatoria*, Fig. 32, c) Cæsar used continually in his sieges. It rested on rollers, was several stories high, of truncated pyramidal shape, and constructed of heavy timbers. The stories were connected by stairs at the side remote from the enemy, and each floor was protected by a high bulwark. There were openings through which the archers and slingers could send their missiles. The tower was constructed out of range of the enemy, and then advanced on rollers, preceded by *musculi* containing workmen who leveled the road. The use of the tower was as a battery from which the opposing wall could be swept, thus protecting the workmen continuing the agger. Also when near enough, a bridge was let fall upon the wall from one of the upper stories, and thus soldiers could rush to the assault.

§ 215. The *pluteus* (Figs. 39, 40, 41) was a movable shield, running on three wheels, one at each end and one in the middle. It was usually made of osier work covered with hides.

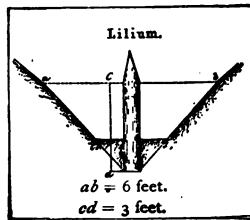


Fig. 43. *Liliun*.

metal, adorned with the horns of animals, having a crest representing a bird or savage beast, and surmounted by a high and bushy plume of feathers. The shield was of plank, at least 5 ft. long, and very narrow. The body was guarded besides by an iron or bronze breastplate, or by a coat of mail. This last was a Gallic invention.

C. THE BRITISH CHARIOTS.

B.G. IV, 33. § 226. In Britain, Cæsar met a new kind of attack. The squadrons of hostile cavalry were intermingled with chariots (*essedae*), two-wheeled cars, each drawn by two horses and containing six soldiers (*essedarii*) besides the driver (*auriga*). Their custom was to charge fiercely,

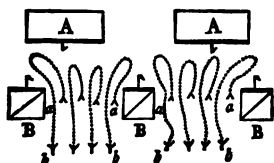


Fig. 47.

A A. Roman Legions.
 B B B. British Cavalry.
 a a a. Post of *essedarii*.
 b b b. Post of chariots.
 a b, etc. Course of chariots.

hoping by the rush of their horses and the clatter of their wheels, as well as by the spears hurled by the *essedarii*, to throw their enemy into confusion. Failing this, they returned to a position among the squadrons of cavalry; and there the spearmen dismounted and

took their post as footmen. Meanwhile the drivers took the chariots to the rear, and there waited.

MAPS
OF THE PRINCIPAL CAMPAIGNS
AND
PLANS
OF THE MOST IMPORTANT BATTLES AND SIEGES
OF THE GALLIC WAR.
ADAPTED FROM
NAPOLEON'S LIFE OF CÆSAR.

VII. THE ENEMY.

A. DEFENCE OF FORTIFIED TOWNS.

§ 220. The sieges that Cæsar's armies conducted were against two sorts of fortifications, — the walled towns of the Gauls, as Alesia, and the more elaborate works that defended haunts of Graeco-Roman civilization, like Massilia.

B.G. II, 12. § 221. The former were comparatively simple, and fell usually without much difficulty before the resources of Roman military science. The defences of Massilia, however, had been planned by the same engineering skill that assailed them, and the town was supplied with every appliance of resistance known to the military art of the day. The siege of that city was a grapple of giants.

B.G. VII, 23. § 222. Cæsar gives a clear account of the construction of a Gallic town wall. Logs are laid on the ground, two

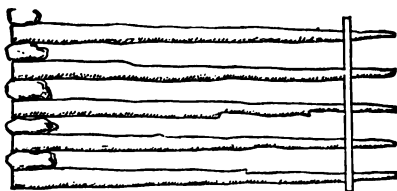


Fig. 45. *Horizontal Section of Gallic Wall.*

feet apart, their length at right angles to the direction of the wall (Fig. 42). The large end of each log is turned without, the small end within. These smaller ends are then fastened together by cross-timbers some 40 feet long, and earth is piled on them. Between the large ends are placed

great stones, and a rubble of small stones is poured into the remaining space between the large stones and the earth at the smaller ends of the logs. Then a second course of logs is laid in like manner, only so that each log of this second course was placed over the stones filling the space between two logs of the first course. Thus the work is carried on until the wall has reached the desired height. Such a wall was quite effective. The stones protected it from fire, and the timber, firmly bound together as it was, made it quite secure from the battering-ram.

Perhaps this is why Cæsar so seldom mentions the ram in detailing his sieges. Rüstow says that Cæsar nowhere speaks of that implement. This statement is an error, as reference is made in two places.

B.G. II, 32;
VII, 23.

On the walls, towers were often erected at various points.

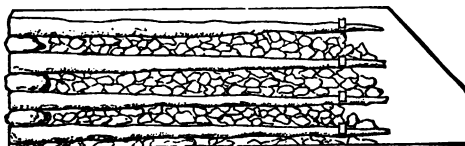
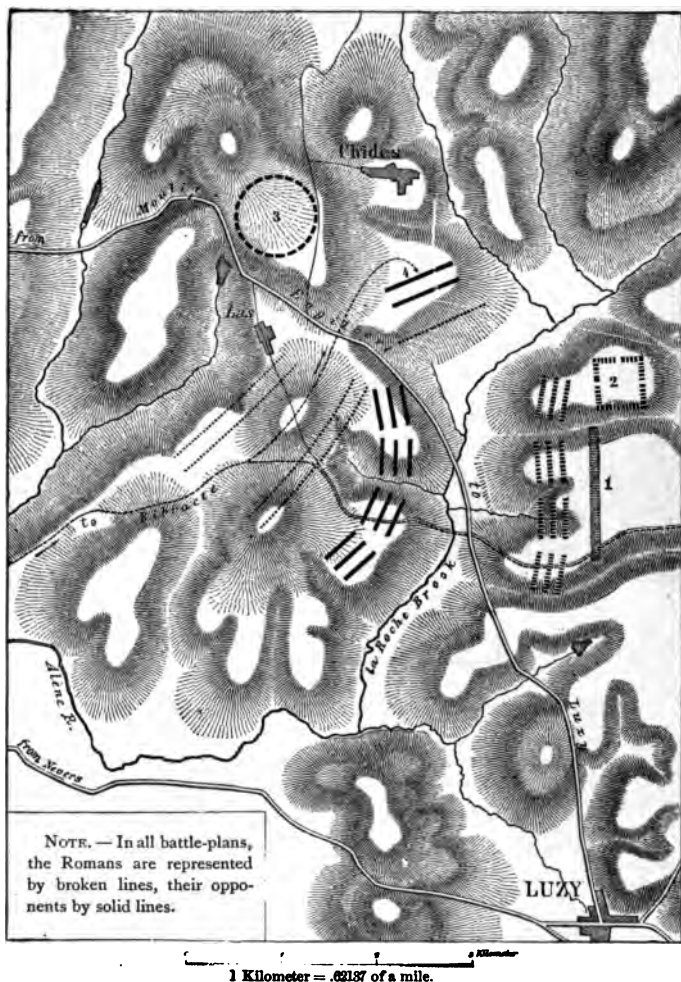


Fig. 46. Vertical Section of Gallic Wall.

§ 223. In the siege of Massilia we learn the varied resources of defence, only a few of which were known to the Gauls.

In the first place, the rampart was lined with artillery, so that the besiegers had to push on their works under a shower of stones and darts. Every effort was made to set fire to the *agger* and to the various huts. At Massilia this at one time succeeded, and all the offensive works were consumed. Fire-balls, made of tow soaked in pitch and kindled, were hurled from the wall. Mines were run, beginning within the wall and ending in the siege works. Through these mines the besieged made sudden sorties, trying to get possession of the works and set them on fire. If the ram

B.G. VII,
22-28.
C. II, 7-15.



Plan II. Battle with the Helvetians. B.G., Bk. I. Chap. 24-26.

1. The new legions and auxiliaries.
2. Caesar's camp.
3. The Helvetians' baggage, parked.
4. The Boii and Tulingi.

The heavy lines show the first position of the two armies. The mountain to which the Helvetians fled lies immediately west of the modern village of *Las*. Just south of that village, the light dotted lines show the position of the Helvetians at their second attack, and, facing them, the second position of the first two lines of the Romans. The third line has wheeled to the right, to meet the flank attack of the Boii and Tulingi.

metal, adorned with the horns of animals, having a crest representing a bird or savage beast, and surmounted by a high and bushy plume of feathers. The shield was of plank, at least 5 ft. long, and very narrow. The body was guarded besides by an iron or bronze breastplate, or by a coat of mail. This last was a Gallic invention.

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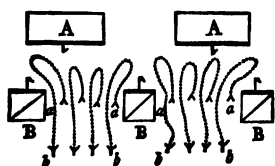


Fig. 47.

A A. Roman Legions.
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a a a. Post of *essedarii*.
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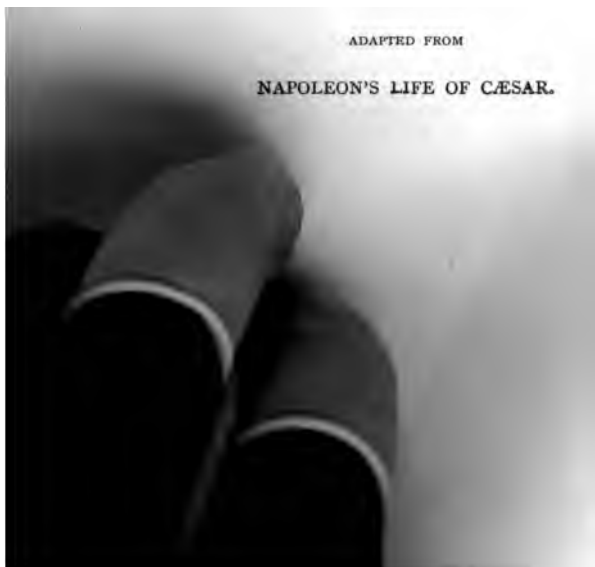
custom was to charge fiercely, hoping by the rush of their horses and the clatter of their wheels, as well as by the spears hurled by the *essedarii*, to throw their enemy

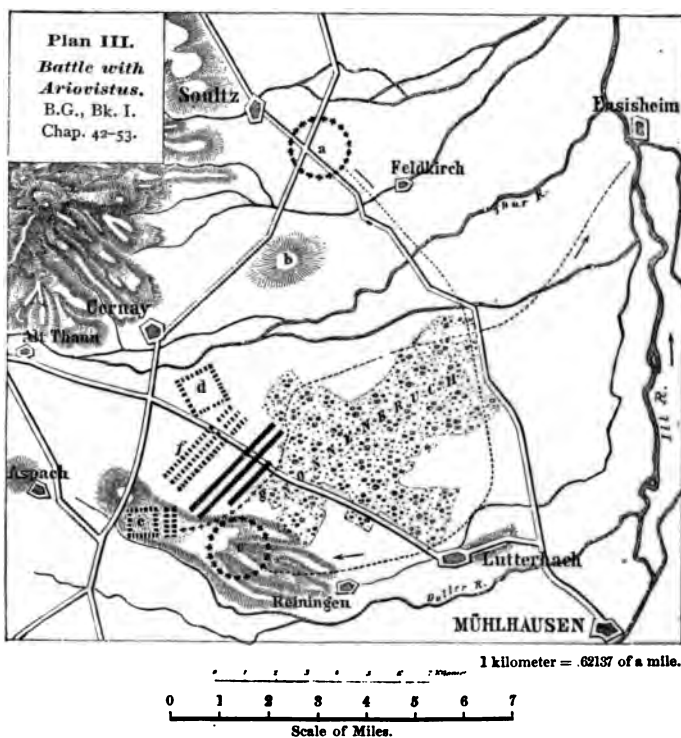
into confusion. Failing this, they returned to a position among the squadrons of cavalry; and there the spearmen dismounted and

took their post as footmen. Meanwhile the drivers took the chariots to the rear, and there waited.

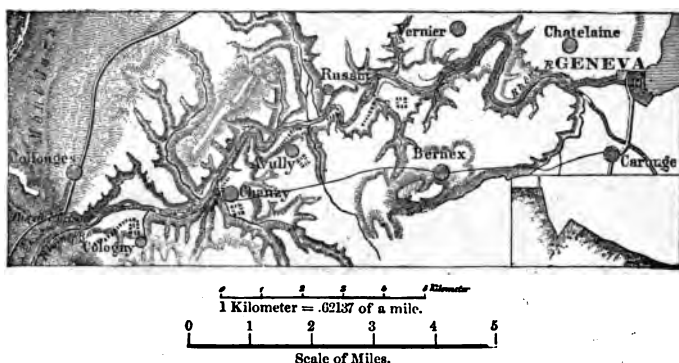
MAPS
OF THE PRINCIPAL CAMPAIGNS
AND
PLANS
OF THE MOST IMPORTANT BATTLES AND SIEGES
OF THE GALLIC WAR.

ADAPTED FROM
NAPOLEON'S LIFE OF CÆSAR.



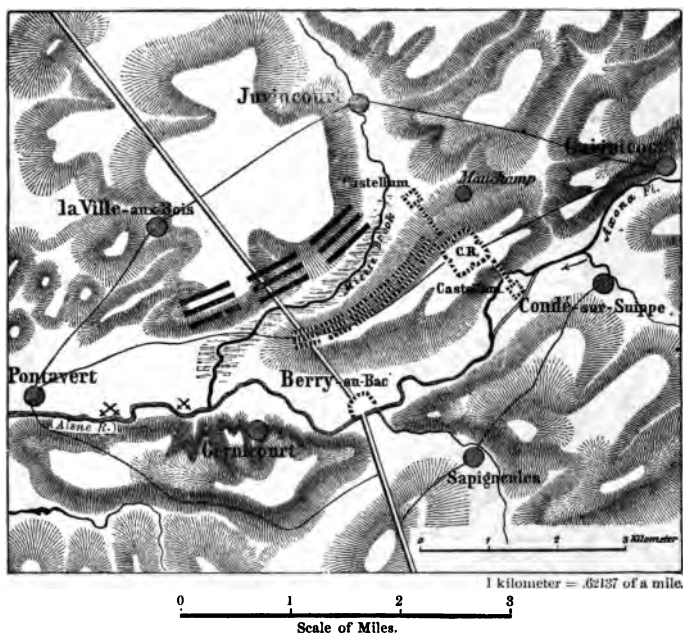


- | | |
|---|--------------------------|
| a. First camp of Ariovistus. | d. Cæsar's larger camp. |
| b. Hill on which the conference was held. | e. Cæsar's smaller camp. |
| c. Second camp of Ariovistus. | f. Roman line of battle. |
| g. German line of battle. | |

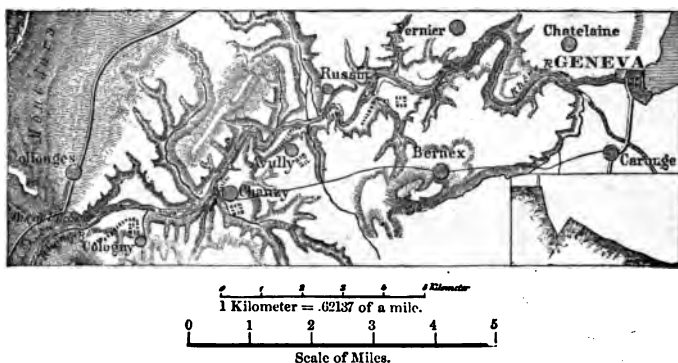


Plan I. Fortifications on the Rhone. B.G., Bk. I. Chap. 8.

The dotted *lines* indicate wall and trench; the dotted *squares*, redoubts. In the lower corner at the right is a vertical section of *mur* and *fossa*. From Geneva to Pas-de-l'Ecluse (or Pas-d'Ecluse), $18\frac{1}{2}$ (English) miles by the river, is only half that distance in a straight line.

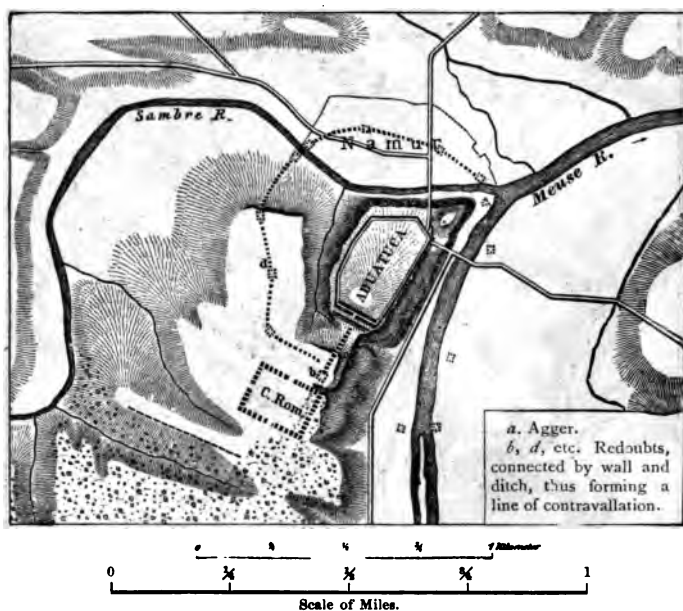


Plan IV. Battle on the Aisne (Axona). B.G., Bk. II. Chap. 5-10.
C. R. Castra Romana.



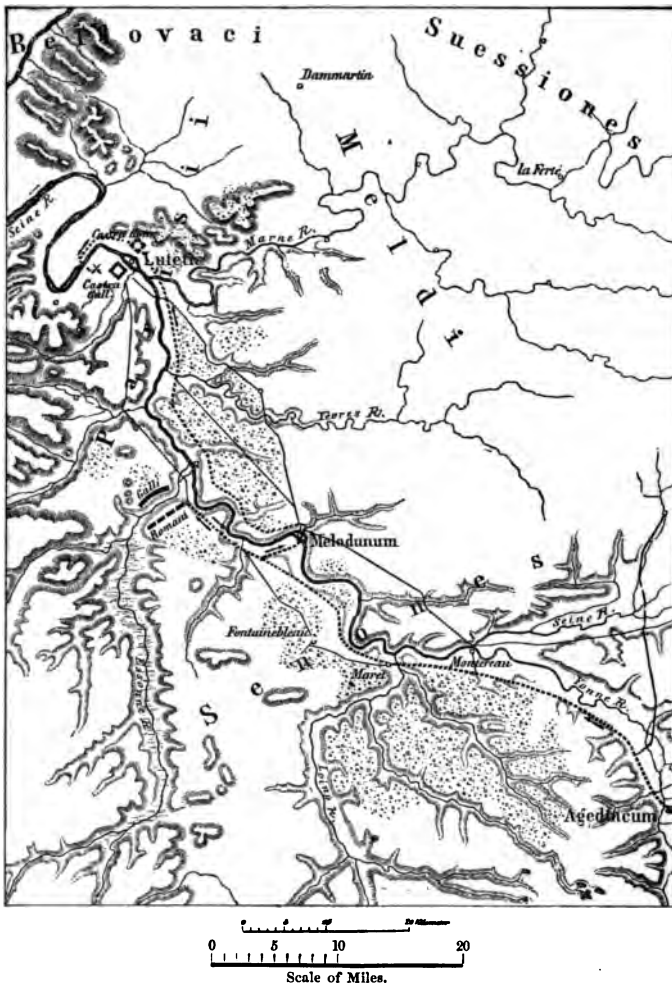
Plan I. Fortifications on the Rhone. B.G., Bk. I. Chap. 8.

The dotted *lines* indicate wall and trench; the dotted *squares*, redoubts. In the lower corner at the right is a vertical section of *mur* and *fossa*. From Geneva to Pas-de-l'Ecluse (or Pas-d'Ecluse), 18½ (English) miles by the river, is only half that distance in a straight line.

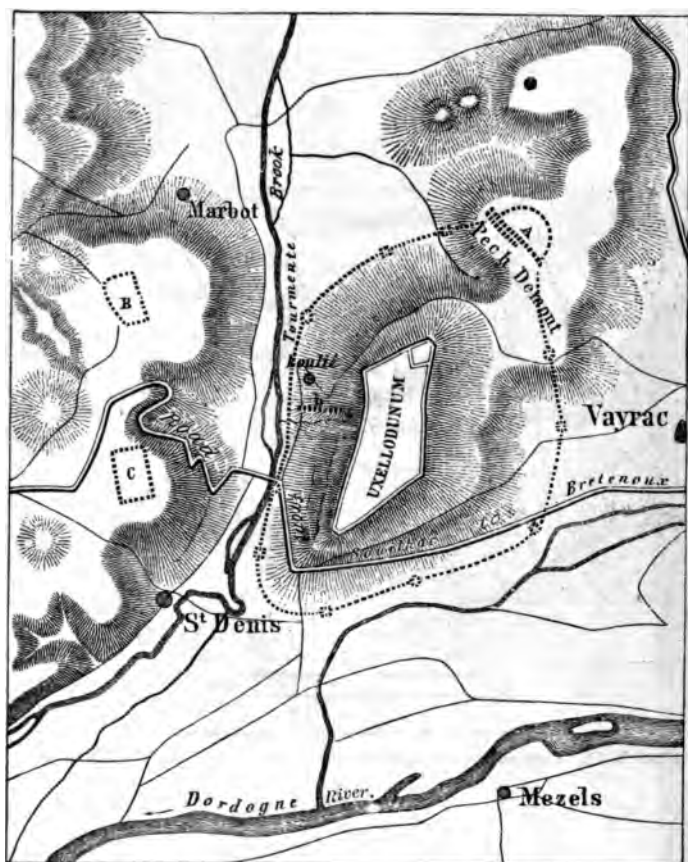


Plan VI. Siege of Aduatuca. B.G., Bk. II. Chap. 29-33.





Plan X. *March of Labienus against Lutetia.* B.G., Bk. VII. Chap. 59-62.



Plan XIV. *Stee of Uxellodunum.* B.G., Bk. VIII. Chap. 33 seqq.

A B C. Roman camps.

b. Roman *agger*.

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